WBS		Name						Start		Finish	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
1.5		Run IIb Installa	tion				Moi	n 1/5/04	Tue	3/28/06	\$175,000.00	\$0.00	\$501,732.78	\$676,732.78	
	This su	efinition- immary task has as its											eter track matching syst the restart of the collidi	em, upgrades to the Leveling beam program.	2 beta processo
.5.1		2004 Tevatron	Shutdowi	n Begins			Mon	8/23/04	Mon	8/23/04	\$0.00	\$0.00	\$0.00	\$0.00	
		Definition- one-Beginning of Fall 2	004 Tevatro	n Shutdown											
.5.2		L0 Silicon Read	dy to Mov	e to DAB			Fi	ri 9/9/05	F	ri 9/9/05	\$0.00	\$0.00	\$0.00	\$0.00	
.5.3		L0 Installation Definition- ne- L0 packed and rea		•			Mon	10/3/05	Mon	10/3/05	\$0.00	\$0.00	\$0.00	\$0.00	
.5.4		Latest Runlib H	lardware	Production &	Testing Co	mpletion	Fi	ri 9/9/05	F	ri 9/9/05	\$0.00	\$0.00	\$0.00	\$0.00	
		Definition- ne-Milestone: date of o	completion o	f latest RunIIb Har	dware Product	ion and Testing	g (L1 CTT)								
.5.5		2005 Tevatron	Shutdowi	n Begins			Mon	10/3/05	Mon	10/3/05	\$0.00	\$0.00	\$0.00	\$0.00	
		Definition- ne-Earliest desired da	te of Tevatro	n shutdown.											
.5.6		Layer 0 Silicon	Installati	on & Technica	al Commiss	ioning	Moi	n 1/5/04	Thu	1/12/06	\$29,500.00	\$0.00	\$123,775.18	\$153,275.18	
.5.6.1	adapte	r cards plus SVX4 read	douts for the	L0 channels, and			ductor cables fo		HV supply.	existing silicor	\$29,500.00	rrently in use for Run	\$42,472.46	s71,972.46	es and special
	This su	efinition-	activities that	must take place to shutdown.	o ensure that a	Il infrastructure	components re	quired for th	ne Run II b silicon	(cables, adap	pter cards, chiller and	dry gas systems, tran	sportation and alignmer	nt fixtures, temperature me	onitoring system
.5.6.1.1		Prepare L0 Ada	pter Cards	and Mounting	g		Mo	n 1/5/04	Mon	12/13/04	\$15,000.00	\$0.00	\$1,518.56	\$16,518.56	
	ID 11	Resource Name PhysicistF	Units 10%	Cost B \$0.00	aseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$0.00	Work 192 h	Ovt. Work Ba	aseline Work 0 h	Act. Work Rem	. Work 0 h			
	12 15	PhysicistU DesignerF	5% 4%	\$0.00 \$2,661.12	\$0.00 \$0.00	\$0.00 \$2,661.12	\$0.00 \$0.00	96 h 76.8 h	0 h 0 h	0 h 0 h	96 h 76.8 h	0 h 0 h			
	37	SeniorElecEngF	5%	\$754.40	\$0.00	\$754.40	\$0.00	16 h	0 h	0 h	16 h	0 h			
	40 48	SeniorMechTechF MandS	2% 12,000	\$1,103.04 \$12,000.00	\$0.00 \$0.00	\$1,103.04 \$12,000.00	\$0.00 \$0.00	38.4 h 12,000	0 h	0 h 0	38.4 h 12,000	0 h 0			
	55	Linda Bagby	5%	\$0.00	\$0.00	\$0.00	\$0.00	96 h	0 h	0 h	96 h	0 h			
	65 66	Ron Sidwell Andre Numerotski	5% 5%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	96 h 96 h	0 h 0 h	0 h 0 h	96 h 96 h	0 h 0 h			
	70	Mike Matulik	5%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	16 h	0 h			
	Notes	Definition-													
		sk provides for the des			pplies.	0.	•	uantify the h	eat load created	at the horsesh	noes.			I and S faces of the Centra	
	Runlla Attention Include horsest	H-disk locations, and per to cooling is require and in the design task are those on the N and S fa 1/05, adapter card loca	d and measure considerate aces of the C	rements of power ions of cable routi central Calorimeter	ng (re-use of th	e 80-conducto	r cables of the F	•					atare monitor boards at	nd cables that must be ad	ded to the exist
	Runlla Attentic Include horsesh [As of 1 M&S B Adding	on to cooling is require ad in the design task ar hoes on the N and S fa 1/05, adapter card loca OE-	d and measure considerate aces of the Contion, standor	urements of power cions of cable routi central Calorimeter of design, cooling (ng (re-use of th r. none needed),	e 80-conducto are finished. C	r cables of the H	nsition card	for temp mon cab	les at horsesl	hoe remain to be com	pleted).		e of technology is not know	

WBS		Name Prepare New L0 HV Power Supply Systems						Start	Fini	sh	M&S EQ	M&S Labor	FNAL Labor	Total Cost		
1.5.6.1.2		Prepare New	L0 HV Po	wer Supply	/ Systems			Tue 10/2	6/04	Mon 3/21/	05 \$	5,000.00	\$0.00	\$7,544.00	\$12,544.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
•	11	PhysicistF	25%	\$0.00	\$0.00	\$0.00	\$0.00	160 h	0 h	0 h	72 h	88 h				
	37	SeniorElecEngF	25%	\$7,544.00	\$0.00	\$3,394.80	\$4,149.20	160 h	0 h	0 h	72 h	88 h				
	48	MandS	5,000	\$5,000.00	\$0.00	\$5,000.00	\$0.00	5,000		0	4,500	500				
	55	Linda Bagby	25%	\$0.00	\$0.00	\$0.00	\$0.00	160 h	0 h	0 h	72 h	88 h				
	72	John Anderson	25%	\$0.00	\$0.00	\$0.00	\$0.00	160 h	0 h	0 h	72 h	88 h				

Notes WBS Definition-

This task provides for the development of the high voltage fanouts for the L0 channels -- additional fanouts may be necessary in MCH2 if those released by the removal of the H-disks are inappropriate.

[1/05 the HV crates, mother boards, pods, and crate PS, are in hand. The pods are tested, the crate PS is ready to test, the MCH2 rack layout is done, the fanouts are done. The 96 SHV cables for MCH (pod -- fanout) must be purchased, and the gaugechange panels made -- these panels must be installed during the 2005 shutdown).

M&S BOE-

Added HV channels may be required in MCH2, but no additional 50-conductor (MCH -- Platform) nor 34-conductor cables are required. 96 SHV cables are required for MCH2.

Labor BOE-

Two man-months of physicst time and the like for Electrical Engineer are required to complete this task. Lynn Bagby and John Foglesong are the preferred personnel

1.5.6.1.3		Refurbish dry g	as system	1				Thu 6/23	3/05	Thu 8/18/0	5 \$	500.00	\$0.00	\$14,482.40	\$14,982.40
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF	25%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	37					\$0.00	\$3,772.00	80 h	0 h	0 h	0 h	80 h			
	39	SeniorMechEngF 10% \$1,518.40 \$0.00 \$0.0				\$0.00	\$1,518.40	32 h	0 h	0 h	0 h	32 h			
	40	SeniorMechEngF 10% \$1,518.40 \$0.00 \$0.00 SeniorMechTechF 100% \$9,192.00 \$0.00 \$0.00				\$9,192.00	320 h	0 h	0 h	0 h	320 h				
	48	MandS	500	\$500.00	\$0.00	\$0.00	\$500.00	500		0	0	500			
	58	Bill Cooper	25%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	59	59 Russ Rucinski 10% \$0.00 \$0.00 \$0.00				\$0.00	32 h	0 h	0 h	0 h	32 h				
	76	99 Russ Rucinski 10% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00			\$0.00	80 h	0 h	0 h	0 h	80 h					

Notes
WBS Definition-

This task provides for required refurbishment of the existing dry air system for the silicon, including overhaul of the (dual) compressors, refurbishment of the driers, and any other needed preventive maintenance (e.g. tube trailer recertification). Because the components are dual, the refurbishment takes place prior to the shutdown for Runllb during normal physics operation of the Tevatron.

M&S BOE-

A small amount of hardware (electrical, valves, etc.) may be required for the refurbishment, \$500 Contingency is set at 100% given the lack of detail available for this system.

The estimated labor requirements are based on RunlIA experience with the dry air system. One full time mechanical technician, plus 2w of a mechanical engineer, 2 weeks of an electrical engineer, and 2w of a physicist to guide the task, are required. Contingency is set at 150%. Dan Markley is the preferred electrical engineer, Bill Cooper the preferred physicist, and Russ Rucinski the preferred mechanical engineer.

1.5.6.1.4		Interface L0 T	emp Mon	itoring Syst	tem to DMACS	3		Wed 5/2	25/05	Wed 6/8/	05 \$6	6,000.00	\$0.00	\$760.00	\$6,760.00
	ID	Resource Name					Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	13	CompProfF	25%	\$760.00	\$0.00	\$0.00	\$760.00	20 h	0 h	0 h	0 h	20 h			
	48	MandS	6,000	\$6,000.00	\$0.00	\$0.00	\$6,000.00	6,000		0	0	6,000			
	60	Dan Markely	25%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			

This task provides for the interfacing of the L0 Temp Mon system to the Cryo Computer Control system: procure AD modules, test modules, insert device names in tables, lay out operator's console screens.

M&S BOE-

Labor BOE-

The estimated labor requirements are based on RunlIA experience, where hundreds of channels of temperature monitoring were interfaced to the DMACS system. Dan Markley is the preferred electrical engineer.

1.5.6.1.5		Label and Test	t TempMe	on Cables	3			Wed 5	/11/05	Thu 5/12	2/05	\$500.00	\$0.00	\$240.00	\$740.00
	ID	Resource Name						Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF	10%	\$0.00	\$0.00	\$0.00	\$0.00	1.6 h	0 h	0 h	0 h	1.6 h			
	38	SeniorElecTechF	50%	\$240.00	\$0.00	\$0.00	\$240.00	8 h	0 h	0 h	0 h	8 h			
	48	MandS	500	\$500.00	\$0.00	\$0.00	\$500.00	500		0	0	500			
	55	Linda Bagby	10%	\$0.00	\$0.00	\$0.00	\$0.00	1.6 h	0 h	0 h	0 h	1.6 h			

Notes

WBS Definition-

This task tests, labels and bundles the temperature monitoring cables for the L0 detector (DMarkley chassis in Platform to horseshoes). Summer 2004 shutdown provides adequate window for installation of cables.

M&S BOE-

\$500 for cables

Labor BOE-

Testing, labeling, bundling effort: 16 (8 per end) 22-Ga temperature monitoring cables. Labeling & Testing: Glenair tester permits testing of 1 cable in 5--10 minutes. Labeling and bundling make the task a 2 day's job.

WBS		Name							Start	Fini	sh	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
1.5.6.1.6		Prepare New I	_V Power	Supply Sy	stem for L0			Thu 4/2	9/04	Fri 8/20/0	04	\$0.00	\$0.00	\$1,508.80	\$1,508.80	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
	11	PhysicistF	10%	\$0.00	\$0.00	\$0.00	\$0.00	64 h	0 h	0 h	64 h	0 h	_			
	37	SeniorElecEngF	5%	\$1,508.80	\$0.00	\$1,508.80	\$0.00	32 h	0 h	0 h	32 h	0 h				
	38	SeniorElecTechF	10%	\$0.00	\$0.00	\$0.00	\$0.00	0 h	0 h	0 h	0 h	0 h				
	55	Linda Bagby	10%	\$0.00	\$0.00	\$0.00	\$0.00	64 h	0 h	0 h	64 h	0 h				
	69	John Fogelsong	10%	\$0.00	\$0.00	\$0.00	\$0.00	64 h	0 h	0 h	64 h	0 h				
	72	John Anderson	5%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	32 h	0 h				

BS Definition-

One new Wiener LVPS unit (4 +1 modules) are required in MCH2, plus 10 cables to the Cathedral minifuse panels. In addition to design of cables and fuse panels, the task includes linking the system to the Silicon glycol system so a cooling trip also shuts down the Wiener PS.

At least 3 modules in a unit will be installed in the 2004 shutdown, plus the minifuse panels.

The trip system will be installed and tested in the 2004 shutdown.

[1/5 all done except CAN controller software prepared].

M&S (\$2.5K) for conversion of 100% Teststand (Sidet) Wiener to D0 configuration is allotted.

Labor BOE-

One man-months of physicst time and the like for Electrical Engineer are required to complete this task. Lynn Bagby and John Foglesong are the preferred personnel.

1.5.6.1.7		Fall 2004 Shut	down Ta	sks				Mon 8/	23/04	Mon 11/22	/04	\$2,50	00.00	\$0.00	\$5,042.70	\$7,542.70	
1.5.6.1.7.1		L0 Clearance M	1easurem	ent				Tue 10	0/5/04	Mon 10/25	/04	\$	0.00	\$0.00	\$0.00	\$0.00	
1.5.6.1.7.2		L0 Prototype M	odules In	stalled Or	n Face of CC			Tue 10/	/19/04	Tue 10/19	/04	\$	\$0.00	\$0.00	\$0.00	\$0.00	
1.5.6.1.7.3	5.6.1.7.3	Install New LV	Power Su	ipply Syst	tem for L0			Mon 8/	/23/04	Fri 8/27	/04	\$2,50	00.00	\$0.00	(\$2,290.80)	\$209.20	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	k Re	em. Work				
	11	PhysicistF	10%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	4	4 h	0 h				
	37	SeniorElecEngF	5%	\$94.30	\$0.00	\$94.30	\$0.00	2 h	0 h	0 h	2	2 h	0 h				
	40	SeniorMechTechF	10%	\$114.90	\$0.00	\$114.90	\$0.00	4 h	0 h	0 h	4	4 h	0 h				
	55 69	Linda Bagby	10%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	4	4 h	0 h				
		John Fogelsong	10%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	4	4 h	0 h				
	72	John Anderson	5%	\$0.00	\$0.00	\$0.00	\$0.00	2 h	0 h	0 h	2	2 h	0 h				

WBS Definition-

One new Wiener LVPS unit (4 +1 modules) are required in MCH2, plus 10 cables to the Cathedral minifuse panels. In addition to design of cables and fuse panels, the task includes linking the system to the Silicon glycol system so a cooling trip also shuts down the Wiener PS.

At least 3 modules in a unit will be installed in the 2004 shutdown, plus the minifuse panels. The trip system will be installed and tested in the 2004 shutdown.

[1/5 all done except CAN controller software prepared].

M&S BOE-

M&S (\$2.5K) for conversion of 100% Teststand (Sidet) Wiener to D0 configuration is allotted.

One man-months of physicst time and the like for Electrical Engineer are required to complete this task. Lynn Bagby and John Foglesong are the preferred personnel.

1.5.6.1.7.4		Test Isolated	PS Interlo	ock Syste	m for L0			Tue 1	1/16/04	Mon 11/2	22/04	\$0.00	\$0.00	\$851.50	\$851.50
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
•	11	PhysicistF 10% \$0.00 \$0.00 \$0.00 CompProfF 25% \$380.00 \$0.00 \$380.00				\$0.00	4 h	0 h	0 h	4 h	0 h				
	13	CompProfF	25%	\$380.00	\$0.00	\$380.00	\$0.00	10 h	0 h	0 h	10 h	0 h			
	37	SeniorElecEngF 25% \$471.50 \$0.00 \$471.50				\$0.00	10 h	0 h	0 h	10 h	0 h				
	58	Bill Cooper	10%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	4 h	0 h			
	60	Dan Markely	25%	\$0.00	\$0.00	\$0.00	\$0.00	10 h	0 h	0 h	10 h	0 h			
	69	Dan Markely 25% \$0.00 \$0.00 John Fogelsong 25% \$0.00 \$0.00				\$0.00	10 h	0 h	0 h	10 h	0 h				

WBS Definition-

This task installs and tests the new L0 silicon LV system temperature interlock. It will be done in the 2004 shutdown. Safety/PORC review needed prior to test/operation. [1/05: task done].

M&S BOE-

NA

Labor BOE-

Estimates are based on a considertion of the task. Dan Markley and John Foglesong, plus Bill Cooper, and an Operations Tech are required.

1.5.6.1.7.5		Terminate L1 C	TT/CTMc	ables			N	1on 8/23	/04	Mon 9/20/04	ļ	\$0.00	\$0.00	\$4,596.00	\$4,596.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
	40	SoniorMochTochE	100%	\$4 506 00	\$0.00	\$4.506.00	\$0.00	160 h	0 h	0 h	160 h	0 h				

WBS Name Start Finish M&S EQ M&S Labor **FNAL Labor Total Cost**

"Terminate L1 CTT/CTMcables" continued

WBS Definition-

Terminate previously installed cables (136, which run between the CTT and the cal-track match, and between L1 Cal and cal-track match). Task will be done during 2004 shutdown.

[1/05: task done].

M&S BOE -

Labor BOE-

12

Run2a muon Level 1 experience terminating cables from muon front ends and CTT to the Level 1 muon triggers. Bob Jones group provides technicians.

1.5.6.1.7.6 \$0.00 \$0.00 \$0.00 \$0.00 Terminate L1 CTT/CTMcables -- Arizona Mon 8/23/04 Mon 9/20/04 Resource Name Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work

0 h

0 h

40 h

40 h

Notes
WBS Definition-

PhysicistU

Terminate previously installed cables (136, which run between the CTT and the cal-track match, and between L1 Cal and cal-track match). Task will be done during 2004 shutdown.

\$0.00

[1/05: task done].

25%

\$0.00

\$0.00

M&S BOE -NA

Labor BOE-

Run2a muon Level 1 experience terminating cables from muon front ends and CTT to the Level 1 muon triggers. Bob Jones group provides technicians.

\$0.00

Install L1CTT splitter crate and power supply 1.5.6.1.7.7 Mon 8/23/04 Mon 9/20/04 \$0.00 \$0.00 \$1,886.00 \$1,886.00 ID Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 Physicisti \$0.00 16 h 16 h 37 SeniorElecEngF 25% \$1,886.00 \$0.00 \$1,886.00 \$0.00 40 h 0 h 0 h 40 h 0 h 79 Jamieson Olson 25% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0 h 40 h 0 h 80 10% Stefan Grunendahl \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h 0 h

Notes

Install a single crate and its power supply on the platorm (in existing "bare" rack) to contain the serial link splitters which are used as repeaters to drive the signals from the L1CTT to the cal-trk. Needs to be done when there is access to the collision hall (preferably during 2004 shutdown), and must be done in advance of the end of run2a (it does not displace any existing equipment) for CTT precommissioning. SCL must also be routed from MCH1 to PC03 on the platform using an existing spare, and Gbit Ethernet from FCH2 to the platform.

[1/05: task done].

Experience with installation of splitter crates for run 2a, plus extra time allowed for installation of new electronics on the detector platform.

\$0.00

M&S BOE

72

1.5.6.1.7.8 Install L1CTM VME crates and power supply -FNAL Mon 8/23/04 Mon 8/23/04 \$0.00 \$0.00 \$0.00 \$0.00 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work SeniorElecEna 10% \$0.00 \$0.00 \$0.00 0 h \$0.00 0 h 0 h

Notes

WBS Definition-

Install cal-trk crates and power supply in moveable counting house in existing rack. Can be done for initial testing before rack mods are completed (rack mods needed for final cable-up after CTM fully installed). Will use a Wiener PS. pORC needed (for boards) before test operation begins.

0 h

0 h

0 h

[1/05: crates and PS fully installed].

John Anderson

10%

\$0.00

Run2a muon Level 1 experience with installation of similar VME crates and power supplies. Assumes two people at 50% FTE each for one week.

\$0.00

\$0.00

0 h

M&S BOE

NA

1.5.6.1.7.9 Install L1CTM VME crates and power supply - Az Mon 8/23/04 Fri 8/27/04 \$0.00 \$0.00 \$0.00 \$0.00 Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 12 PhysicistU \$0.00 \$0.00 \$0.00 40 h 0 h 40 h 0 h 91 Susan Burke 100% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0 h 40 h 0 h

Notes

WBS Definition-

Install cal-trk crates and power supply in moveable counting house in existing rack. Can be done for initial testing before rack mods are completed (rack mods needed for final cable-up after CTM fully installed). Will use a Wiener PS. pORC needed (for boards) before test operation begins.

WBS Name Start Finish M&S EQ M&S Labor FNAL Labor **Total Cost**

"Install L1CTM VME crates and power supply - Az" continued

[1/05: crates and PS fully installed].

Labor BOE-

Run2a muon Level 1 experience with installation of similar VME crates and power supplies. Assumes two people at 50% FTE each for one week.

M&S BOE

1.5.6.1.8 End of Fall 2004 Shutdown Wed 12/1/04 Wed 12/1/04 \$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

\$0.00

WBS Definition-

Milestone-End of Tevatron shutdown, Fall 2004.

1.5.6.1.9

	Modify Runlla	L3/Offlin	e Silicor	Software -FN	IAL		Wed 1	/19/05	Thu 7/2	1/05	\$0.00
ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
11	PhysicistF	100%	\$0.00	\$0.00	\$0.00	\$0.00	1,040 h	0 h	0 h	0 h	1,040 h
89	Shaoua Fu	100%	\$0.00	\$0.00	\$0.00	\$0.00	1.040 h	0 h	0 h	0 h	1.040 h

WBS Definition-

This task modifies the L3/offline software needed for the L0 silicon system at DAB. Included is simulation(D0gstar), unpacking and calibration, cluster reconstruction, L3 algorithms, track resonstruction(RECO), monitoring (Examine, event display).

M&S BOE-

NA

Labor BOF-

The effort estimates are made by assessing the time needed to make a series of well-defined modifications to the existing Run Ila software. The effort estimates and capable individuals are: simulation 8mw (Chabalina), unpacking and calibration 4 mw (Kulik, Zdrazil), cluster reconstruction 8mw (Barberis, Kulik), L3 algorithms 3mw (Illingworth), track reconstruction 6mw (Kulik, Khanov, Borisov), monitoring 12mw (Chabalina, Hesketh, Dean).

S. Fu (postdoc)

1.5.6.1.10

	Modify Runlla L	3/Offline	Silicon S	Software - U			Wed 1/1	9/05	Thu 7/21/	05	\$0.00	
ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	
12	PhysicistU	200%	\$0.00	\$0.00	\$0.00	\$0.00	2,080 h	0 h	0 h	0 h	2,080 h	
88	Alexei Melnitchouk	100%	\$0.00	\$0.00	\$0.00	\$0.00	1,040 h	0 h	0 h	0 h	1,040 h	

This task modifies the L3/offline software needed for the L0 silicon system at DAB. Included is simulation(D0gstar), unpacking and calibration, cluster reconstruction, L3 algorithms, track resonstruction(RECO), monitoring (Examine, event display).

M&S BOE-

Labor BOE-

The effort estimates are made by assessing the time needed to make a series of well-defined modifications to the existing Run IIa software. The effort estimates and capable individuals are: simulation 8mw (Chabalina), unpacking and calibration 4 mw (Kulik, Zdrazil), cluster reconstruction 8mw (Barberis, Kulik), L3 algorithms 3mw (Illingworth), track reconstruction 6mw (Kulik, Khanov, Borisov), monitoring 12mw (Chabalina, Hesketh, Dean).

Alex Melnitchouk (U. Miss) postdoc, leads; Timwar ? grad student UIC, ?grad student KU

1.5.6.1.11 Prepare Safety and PORC documentation Mon 7/26/04

Thu 8/4/05

\$0.00

\$11,376.00

\$1,886.00

\$11,376.00

\$1,886.00

Notes WBS Definition-

This task provides effort the preparation of any required safety documentation (e.g. extended silicon HV and LV systems, Be beampipe handling procedures, etc.) and drafts the necessary PORC's so that only final "walk-thrus" are needed as installation is completed. The task is scheduled to begin somewhat arbitrarily 1 year before the beginning of the shutdown.

HV in 2005?

Beampipe leak check procedures. (Russ to review 2004 SNEG item)

M&S BOS-

None.

Labor BOE-

Ongoing physicist and engineering effort required to assure paperwork completion in a timely maner. Rich Smith, Russ Rucniski, Bill Cooper, Lyn Bagby, Youri Orlov, Dan Marlkey, are the preferred physicsts and engineers to prepare the documentation.

1.5.6.1.11.1		Prepare Si LV	PS Safet	y and POR	C Documenta	tion		Mon 7/2	26/04	Fri 8/6/	04	\$0.00	\$0.00
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	40 h	0 h	
	37	SeniorElecEngF	50%	\$1,886.00	\$0.00	\$1,886.00	\$0.00	40 h	0 h	0 h	40 h	0 h	
	55	Linda Bagby	50%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	40 h	0 h	
	72	John Anderson	50%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	40 h	0 h	

WBS Name Start Finish M&S EQ M&S Labor **FNAL Labor Total Cost**

"Prepare Si LVPS Safety and PORC Documentation" continued

WBS Definition-

This task provides effort for the preparation of the new SI Low Voltage Power Supply system and cooling interlock safety documentation and PORCS, including "walk-thrus" required for permission to operate the system.

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, two weeks time by an electrical engineer, and physicist are required for this task. John Anderson and Lyn Bagby are the preferred

1.5.6.1.11.2 Fri 7/22/05 \$0.00 \$3,796.00 Prepare L0 Si Cooling Safety and PORC Documentation Thu 8/4/05 \$0.00 \$3,796.00 Resource Name Units Baseline Cost Act. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work Cost Rem. Cost \$0.00 Physicisti \$0.00 \$0.00 \$0.00 8 h 8 h 10% 0 h 0 h \$3,796.00 SeniorMechEngF 100% \$3,796.00 \$0.00 \$0.00 80 h 0 h 0 h 0 h 80 h Bill Cooper 10% \$0.00 \$0.00 \$0.00 \$0.00 0 h 0 h 0 h 8 h Dan Olis 100% \$0.00 \$0.00 \$0.00 \$0.00 80 h 0 h 0 h 0 h 80 h

Notes

WBS Definition-

This task provides effort for the preparation of the Layer Zero Si cooling system safety documentation and PORCS, including "walk-thrus" required for permission to operate the system.

M&S BOS-

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, two weeks time by an mechanical engineer, and supervision by a physicist are required for this task. Bill Cooper and Dan Olis are the preferred personnel.

1.5.6.1.11.3 Prepare L0 Si Dry Gas Safety and PORC Documentation Fri 7/8/05 Thu 7/21/05 \$0.00 \$0.00 \$3,796.00 \$3,796.00 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 Physicisti 10% \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h 39 SeniorMechEngF \$3,796.00 \$0.00 \$3,796.00 0 h 80 h 100% \$0.00 80 h 0 h 0 h Bill Cooper 10% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h Dan Olis 100% \$0.00 \$0.00 \$0.00 \$0.00 80 h 0 h 0 h 0 h 80 h

Notes

WBS Definition-

This task provides effort for the preparation of the Layer Zero Si dry gas system safety documentation and PORCS, including "walk-thrus" required for permission to operate the system.

M&S BOS-

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, two weeks time by an mechanical engineer, and supervision by a physicist are required for this task. Bill Cooper and Dan Olis are the preferred personnel

1.5.6.1.11.4 Prepare Beampipe Handling Safety Documentation Thu 6/16/05 Wed 6/29/05 \$0.00 \$0.00 \$0.00 \$0.00 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work \$0.00 80 h Physicisti \$0.00 \$0.00 \$0.00 0 h 80 h 61 Rich Smith 100% \$0.00 \$0.00 \$0.00 \$0.00 80 h 0 h 0 h 0 h 80 h

Notes

WBS Definition-

This task provides effort for the preparation of the beryllium beampipe safety documentation.

50%

M&S BOS-

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, one week time by a physicist is required for this task. Rich Smith is the preferred personnel.

40 h

1.5.6.1.11.5 Fri 7/22/05 Thu 8/4/05 \$0.00 \$0.00 \$1.898.00 \$1.898.00 Prepare Tevatron Beampipe Leak Checking Procedure Resource Name Units Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 39 SeniorMechEnal 50% \$1.898.00 \$0.00 \$0.00 \$1,898.00 40 h 0 h 0 h 0 h 40 h

59

Russ Rucinski

This task provides effort for the preparation of the Tevatron beampipe leak checking safety documentation.

\$0.00

\$0.00

\$0.00

\$0.00

M&S BOS-

None.

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, one week time by an engineer is required for this task. Russ Rucinski is the preferred personnel

0 h

0 h

0 h

40 h

5.6.1.12		Name						Sta		Finish		M&S EQ	M&S Labor	FNAL Labor	Total Cost	
		Silicon Safety	and POR	C Docume	ntation Com	pleted		Thu 8/4/0	5	Thu 8/4/05		\$0.00	\$0.00	\$0.00	\$0.00	
	Notes WBS De	efinition-														
	All safet	y and PORC docume	ntation for F	Runllb are cor	nplete.											
5.6.2		Silicon Infrastr	ucture P	repared				Thu 8/18/0	5	Thu 8/18/05		\$0.00	\$0.00	\$0.00	\$0.00	
	Notes WBS De	efinition-														
			quired by th	ne silicon (cab	les, chiller and p	iping, dry gas s	system, HV an	d LV systems	, installatio	on fixtures) is complete	e.					
.5.6.3		Open Detector	Install G	ap Acces	Hardware			lon 10/3/0	5	Wed 10/5/05		\$0.00	\$0.00	\$4,246.20	\$4,246.20	
	Notes	-		•												
	WBS De		forward mu	uon shields. is	olates and backt	ills Tev beamp	ipe, installs re	mote purae lir	nes to cros	ses at quads, remove	es FPD ve	to counters on S	NEG pipes, opens I	EF's, removes BLM's fro	m EF's, opens CF's, ope	ens ES's. a
		s the CC-EC gaps for								, , , , , , , , , , , , , , , , , , , ,			. , , , . ,	,	-, -,, -, -, -, -, -, -, -, -, -	
.5.6.3.1		Perform Rad su	rvey, ope	n forward n	nuon shields			Mon 10/3/0	5	Mon 10/3/05		\$0.00	\$0.00	\$554.50	\$554.50	
	ID	Resource Name	Units		Baseline Cost		Rem. Cost	Work Ov	t. Work	Baseline Work Ac	t. Work	Rem. Work				
	11 39	PhysicistF SeniorMechEngF	50% 50%	\$0.00 \$94.90	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$94.90	2 h 2 h	0 h 0 h	0 h 0 h	0 h 0 h	2 h 2 h				
	40	SeniorMechTechF	400%	\$459.60	\$0.00	\$0.00	\$459.60	16 h	0 h	0 h	0 h	16 h				
	59	Russ Rucinski	50%	\$0.00	\$0.00	\$0.00	\$0.00	2 h	0 h	0 h	0 h	2 h				
	Notes WBS De	efinition-														
	This tas	k performs the require	ed rad surve	ey of the collis	ion hall before g	eneral personn	el access peri	nitted, opens	forward m	uon shielding (but leav	es bridge	s in place).				
	M&S BC	DE-														
	NA															
	Labor B	OE-														
	Runlla e	experience where the	se tasks we	re done on se	veral occasions,	forms the basi	s of estimate t	or effort.								
E C O O		Install Tay DD n	uras Dor	nava EDD	Vatana Onen	EE's		Man 40/2/0	<u> </u>	Man 40/2/05		ΦΩ ΩΩ	PO 00	CEE 4 EO	ФЕЕ 4 E О	
5.6.3.2	ID	Install Tev BP p Resource Name	urge, Ker Units		Vetoes, Open Baseline Cost		Rem. Cost	Vion 10/3/0 Work Ov	t. Work	Mon 10/3/05 Baseline Work Ac	t. Work	\$0.00 Rem. Work	\$0.00	\$554.50	\$554.50	
	39	SeniorMechEngF			Dasellile Cost	Act. Cost		VVOIK OV	L. VVOIK							
			50%	\$94.90	\$0.00	\$0.00	\$94.90	2 h	0 h	0 h	0 h	2 h				
	40	SeniorMechTechF	400%	\$459.60	\$0.00	\$0.00	\$94.90 \$459.60	2 h 16 h	0 h	0 h 0 h	0 h 0 h	2 h 16 h				
							\$94.90	2 h		0 h	0 h	2 h				
	40 59 Notes WBS De	SeniorMechTechF Russ Rucinski efinition-	400% 50%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	, FO #	N00 11 II		, ,
	40 59 Notes WBS De This tas	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill	400% 50%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ures N&S quad bellows a	assembly length, retracts	s forward r
	40 59 Notes WBS De This tasi bridges,	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's	400% 50%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ires N&S quad bellows a	assembly length, retracts	s forward r
	40 59 Notes WBS De This tas	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's	400% 50%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ires N&S quad bellows a	assembly length, retracts	s forward r
	Motes WBS De This tas bridges, M&S BC NA	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's	400% 50%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ures N&S quad bellows a	assembly length, retracts	s forward r
	Motes WBS De This tast bridges, M&S BC NA Labor Be	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's	400% 50% — Is Tev beam	\$459.60 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ures N&S quad bellows a	assembly length, retracts	s forward r
	Motes WBS De This tast bridges, M&S BC NA Labor Be	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE-	400% 50% — Is Tev beam	\$459.60 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ures N&S quad bellows a	assembly length, retracts	s forward r
	Motes WBS De This tast bridges, M&S BC NA Labor Be	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE-	400% 50%	\$459.60 \$0.00 upipe through	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 Ite purge lines	\$94.90 \$459.60 \$0.00	2 h 16 h 2 h	0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	2 h 16 h 2 h	f EC flanges, measu	ures N&S quad bellows a	assembly length, retracts	s forward r
	Motes WBS De This tas bridges, M&S BC NA Labor Bc Runlla e	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE- experience where the Open CF's, EC's Resource Name	400% 50% Is Tev beam se tasks we Units	\$459.60 \$0.00 spipe through re done during Gap Access	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 te purge lines	\$49.90 \$459.60 \$0.00 at crosses by	2 h 16 h 2 h quads, measu Tue 10/4/0 Work 0	0 h 0 h	O h O h O h O h Wed 10/5/05 Baseline Work	0 h 0 h 0 h nters, mea	2 h 16 h 2 h sures location of				s forward r
	Motes WBS De This tasi bridges, M&S BC NA Labor Be Runlla e	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE- experience where the: Open CF's, EC's	400% 50% ds Tev beam se tasks we	\$459.60 \$0.00 spipe through re done during Cost \$379.60	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 te purge lines	\$94.90 \$459.60 \$0.00 at crosses by If Rem. Cost \$379.60	2 h 16 h 2 h quads, measu Tue 10/4/0 Work C 8 h	0 h 0 h ires and re	oh oh oh omoves FPD veto cour	0 h 0 h 0 h nters, mea Act. Work 0 h	2 h 16 h 2 h 2 h 3 h 3 h 3 h 3 h 3 h 3 h 3 h 3 h 3 h 3				s forward r
	MSS De This tasi bridges, M&S BC NA Labor B Runlla e	SeniorMechTechF Russ Rucinski Inition- k isolates and backfill opens EF's DE- OPE- Experience where the Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN	400% 50% Is Tev beam se tasks we Units 50% 600% 200%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60	\$0.00 \$0.00 \$0.00 D0, installs removed g 2004 shutdown s Hardware, N Baseline Cost \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 te purge lines :	\$49.90 \$459.60 \$0.00 at crosses by Rem. Cost \$379.60 \$2,757.60 \$2,80.00	2 h 16 h 2 h 2 h quads, measu quads, measu Quads, measu 8 h 96 h 32 h	0 h 0 h ores and res 5 ovt. Work 0 h 0 h	Wed 10/5/05 Baseline Work Oh Oh Oh	Oh Oh Oh Oh Oh Act. Work	\$0.00 Rem. Work 8h 96h 32 h				s forward r
	MSS De This tasis bridges, M&S BC NA Labor B Runlla e	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE- experience where the: Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF	400% 50% Is Tev beam se tasks we Units 50% 600%	\$459.60 \$0.00 spipe through re done during Gap Access Cost \$379.60 \$2,757.60	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines.	\$49.90 \$459.60 \$0.00 at crosses by If Rem. Cost \$379.60 \$2,757.60	2 h 16 h 2 h 2 h quads, measu Tue 10/4/0 Work C 8 h 96 h	0 h 0 h ares and re	Wed 10/5/05 Baseline Work Oh Oh	O h O h O h O h O h Act. Work O h	\$0.00 Rem. Work 8h 96 h 32 h				s forward r
5.6.3.3	M&S BC NA Labor B' Runlla e	SeniorMechTechF Russ Rucinski sfinition- k isolates and backfill opens EFs DE- OE- experience where the: Open CF's, EC's Resource Name SeniorMechTechF GapN GapS Russ Rucinski	400% 50% Is Tev beam se tasks we Units 50% 200% 200%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines: 	\$94.90 \$459.60 \$0.00 at crosses by If Rem. Cost \$379.60 \$2,757.60 \$0.00 \$0.00	2 h 16 h 2 h quads, measu quads, measu Quads, measu 8 h 96 h 32 h 32 h	0 h 0 h 0 h ores and res	Wed 10/5/05 Baseline Work Oh Oh Oh	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8h 96 h 32 h				s forward r
5.6.3.3	M&S BC NA Labor B Runlla e	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OPE- experience where the: Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN GapN Russ Rucinski efinition-	400% 50% Is Tev beam se tasks we se tasks we Units 50% 600% 200% 50%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60 \$0.00 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines.	\$94.90 \$459.60 \$0.00 at crosses by at crosses by Em. Cost \$379.60 \$2,757.60 \$0.00 \$0.00	2 h 16 h 2 h 2 h 2 h quads, measu quads, mea	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward r
5.6.3.3	M&S BC NA Labor B Runlla c ID 39 Notes WS BC NA Labor B Runlla c ID 39 49 50 Notes WS BC NA ID 39 ID ID ID ID ID ID ID ID ID I	SeniorMechTechF Russ Rucinski Ifinition- k isolates and backfill opens EF's DE- OPE- Experience where the Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski Ifinition- k removes BLM's fror	400% 50% Is Tev beam se tasks we se tasks we Units 50% 600% 200% 50%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60 \$0.00 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines.	\$94.90 \$459.60 \$0.00 at crosses by at crosses by Em. Cost \$379.60 \$2,757.60 \$0.00 \$0.00	2 h 16 h 2 h 2 h 2 h quads, measu quads, mea	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00		\$3,137.20	s forward r
5.6.3.3	M&S BC Runlla & 1D 39 Ato 159 Mars BC Runlla & 1D 39 Ato 159 Mars BC Runls & 150	SeniorMechTechF Russ Rucinski Ifinition- k isolates and backfill opens EF's DE- OPE- Experience where the Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski Ifinition- k removes BLM's fror	400% 50% Is Tev beam se tasks we se tasks we Units 50% 600% 200% 50%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60 \$0.00 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines.	\$94.90 \$459.60 \$0.00 at crosses by at crosses by Em. Cost \$379.60 \$2,757.60 \$0.00 \$0.00	2 h 16 h 2 h 2 h 2 h quads, measu quads, mea	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward n
5.6.3.3	M&S BC NA M&S BC NA ID Notes WBS De This tasi bridges, M&S BC NA Labor Brannla e ID 39 40 49 50 59 Notes WBS De This tasi M&S BC NA	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE- experience where the: Open CF's, EC's Resource Name SeniorMechTechF GapN GapN GapS Russ Rucinski efinition- k removes BLM's fror DE-	400% 50% Is Tev beam se tasks we se tasks we Units 50% 600% 200% 50%	\$459.60 \$0.00 spipe through re done during Cost \$379.60 \$2,757.60 \$0.00 \$0.00	\$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines.	\$94.90 \$459.60 \$0.00 at crosses by at crosses by Em. Cost \$379.60 \$2,757.60 \$0.00 \$0.00	2 h 16 h 2 h 2 h 2 h quads, measu quads, mea	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward r
5.6.3.3	M&S BC NA Labor B' Notes ### And NA ###	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's OE- Experience where the: Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN Russ Rucinski efinition- k removes BLM's fror DE- OE- OE-	400% 50% Is Tev beam se tasks we Units 50% 600% 200% 50% m EF's, mea	\$459.60 \$0.00 Appipe through The done during Gap Access \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00 Solution and the second	\$0.00 \$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines: 	\$49.90 \$459.60 \$0.00 at crosses by If Rem. Cost \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00 \$0.00	2 h 16 h 2 h 2 h quads, measu quads, measu quads, measu quads, measu guads, guads, measu guads, g	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward r
5.6.3.3	M&S BC NA Labor B' Notes ### And NA ###	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's DE- OE- experience where the: Open CF's, EC's Resource Name SeniorMechTechF GapN GapN GapS Russ Rucinski efinition- k removes BLM's fror DE-	400% 50% Is Tev beam se tasks we Units 50% 600% 200% 50% m EF's, mea	\$459.60 \$0.00 Appipe through The done during Gap Access \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00 Solution and the second	\$0.00 \$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines: 	\$49.90 \$459.60 \$0.00 at crosses by If Rem. Cost \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00 \$0.00	2 h 16 h 2 h 2 h quads, measu quads, measu quads, measu quads, measu guads, guads, measu guads, g	5 bvt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward r
5.6.3.3	M&S BC NA Labor B' Notes ### And NA ###	SeniorMechTechF Russ Rucinski sfinition- k isolates and backfill opens EFs DE- OE- experience where the Open CF's, EC's Resource Name SeniorMechTechF GapN GapS Russ Rucinski efinition- k removes BLM's fror DE- experience where this	400% 50% Is Tev beam se tasks we Units 50% 600% 200% 50% m EF's, mea	\$459.60 \$0.00 Appipe through The done during Gap Access \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00 Solution and the second	\$0.00 \$0.00 \$0.00 D0, installs remo	\$0.00 \$0.00 ste purge lines: 	\$49.90 \$459.60 \$0.00 at crosses by Rem. Cost \$379.60 \$2.757.60 \$0.00 \$0.00 \$0.00 \$0.00	2 h 16 h 2 h 2 h quads, measu quads, measu quads, measu Work 6 8 h 96 h 32 h 32 h 8 h 8 h 6 f 8 h 6 f 8 h 7 f 8 h 8 h 8 h 8 h 8 h 8 h 8 h	5 Ovt. Work Oh Oh Oh Oh Oh	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	O h O h O h O h O h O h O h O h O h O h	\$0.00 Rem. Work 8 h 96 h 32 h 32 h makes rad survi	\$0.00 - ey of exposed beam	\$3,137.20 spipe and calorimeter sur	\$3,137.20	s forward r
5.6.3.3	M&S BC NA Labor B' Notes ### And NA ###	SeniorMechTechF Russ Rucinski efinition- k isolates and backfill opens EF's OE- Experience where the: Open CF's, EC's Resource Name SeniorMechEngF SeniorMechTechF GapN Russ Rucinski efinition- k removes BLM's fror DE- OE- OE-	400% 50% Is Tev beam se tasks we S, Install (Units 50% 600% 200% 200% 50% m EF's, mea	\$459.60 \$0.00 spipe through re done during Gap Access Cost \$379.60 \$2,757.60 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 D0, installs remove the second	\$0.00 \$0.00 ste purge lines: 	\$49.90 \$459.60 \$0.00 at crosses by at crosses by Rem. Cost \$379.60 \$2.757.60 \$0.00 \$0.00 \$0.00 \$0.00	2 h 16 h 2 h 2 h 2 h 2 h 2 h quads, measu. Tue 10/4/0 Work C 8 h 96 h 32 h 32 h 8 h EC's, installs s	Oh Oh Oh oh ores and re	Wed 10/5/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Act. Work Oh Oh Oh Iters, mea	\$0.00 Rem. Work 8 h 96 h 32 h 8 h	\$0.00	\$3,137.20	\$3,137.20	s forward r

38		ame						Star	t	Finish	M&:	S EQ	M&S Labor	FNAL Labor	Total Cost	
arm Sil	con" contin Notes	nued														
	WBS Definit	tion- varms the silicon al	bove CH de	wpoint												
		rattis the silicon at	bove Ci i de	wpoint.												
	M&S BOE- NA															
	Labor BOE- Runlla expe	erience where thies	se operation	s were done o	during 2004 shu	tdown forms t	he basis of esti	imate.								
6.4	Sil	ilicon Warm, D	Detector (Open & Re	adv for Acc	ess		Wed 10/5/0	5	Wed 10/5/05	\$	0.00	\$0.00	\$0.00	\$0.00	
	Notes				,						Ť		*****	*****	*****	
	WBS Definit Milestone-Be	tion- Be beampipe disco	nnected fror	n EC beampip	es. First Be ass	say wipes out	for analysis.									
5.5	Dr Notes	rain Silicon Co	oolant, D	isconnect	Inner Beam	pipes		Thu 10/6/0	5	Mon 10/10/05	\$	0.00	\$0.00	\$1,109.00	\$1,109.00	
	WBS Definit															
	This summa	ary task closes EF	's/EC's, rem	oves SNEG pi	ipes, drains Si c	oolant, Open	s EC's/EF's, cu	its off inner bea	ampipes, p	ourges Si coolant lines						
6.5.1	Notes Be	e Assay						Thu 10/6/05	5	Thu 10/6/05	\$	0.00	\$0.00	\$0.00	\$0.00	
	WBS Definit															
	This task sto	ops dry gas purge	, removes te	dlar cover, pe	rform Be wipe.											
	M&S BOE- NA															
	Labor BOE- Runlla expe		se operation	s were done o	during 2004 shu	tdown forms t	he basis of esti	imate. (Resour	ces loade	d in following task).						
			se operation	s were done o	during 2004 shu	tdown forms t	he basis of esti	imate. (Resour	ces loade	d in following task).						
6.5.2	Runlla expe	erience where thies				tdown forms t					\$	0.00	\$0.00	\$1,109,00	\$1.109.00	
6.5.2	Runlla expe	ad Survey, Dis	sconnect E	C/Be joints	Baseline Cost	Act. Cost	N Rem. Cost	on 10/10/0		Mon 10/10/05	t. Work Re	0.00 em. Work	\$0.00	\$1,109.00	\$1,109.00	
6.5.2	Runlla experimental Runlla experimental Rational	ad Survey, Dis	SCONNECT E Units 50%	C/Be joints Cost B \$189.80	Baseline Cost \$0.00	Act. Cost \$0.00	N	on 10/10/05 Work Ovt. 4 h	5	Mon 10/10/05 Baseline Work Act			\$0.00	\$1,109.00	\$1,109.00	
6.5.2	Runlla experimental experimenta	ad Survey, Disesource Name eniorMechEngFeniorMechTechFapN	Units 50% 400% 200%	Cost B \$189.80 \$919.20 \$0.00	\$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00	Mork Ovt. 4 h 32 h 16 h	0 h 0 h 0 h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h	em. Work 4 h 32 h 16 h	\$0.00	\$1,109.00	\$1,109.00	
6.5.2	Runlla experience Rail	ad Survey, Dis	CONNECT E Units 50% 400%	C/Be joints Cost B \$189.80 \$919.20	\$0.00 \$0.00	Act. Cost \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20	Mon 10/10/05 Work Ovt. 4 h 32 h	5 . Work 0 h 0 h	Mon 10/10/05 Baseline Work Act	t. Work Re	em. Work 4 h 32 h	\$0.00	\$1,109.00	\$1,109.00	
5.5.2	Runlla experience Ramilla Rami	ad Survey, Dis ad Survey, Dis assource Name eniorMechEngF eniorMechTechF apN aps sss Rucinski	Units 50% 400% 200%	Cost B \$189.80 \$919.20 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00	Mork Ovt. 4 h 32 h 16 h 16 h	5 . Work 0 h 0 h 0 h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h	\$0.00	\$1,109.00	\$1,109.00	
3.5.2	Runlla experience Rac	ad Survey, Dis ad Survey, Dis assource Name eniorMechEngF eniorMechTechF apN uss Rucinski	Units 50% 400% 200% 50% 50%	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	NRem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	Mon 10/10/05 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work O h O h O h O h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h 4 h			\$1,109.00 vey of beampipe regions.	
6.5.2	Runlla experience Research Res	ad Survey, Dis ad Survey, Dis assource Name eniorMechEngF eniorMechTechF apN uss Rucinski	Units 50% 400% 200% 50% 50%	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	NRem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	Mon 10/10/05 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work O h O h O h O h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h 4 h				
6.5.2	Runlla experience Rac	ad Survey, Dis ad Survey, Dis assource Name eniorMechEngF eniorMechTechF apS uss Rucinski tion- moves foam, G10	Units 50% 400% 200% 50% 50%	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	NRem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00	Mon 10/10/05 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work O h O h O h O h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h 4 h				
6.5.2	Ranila experience Ranila experience Ranila	ad Survey, Dis source Name eniorMechEngF eniorMechTechF apN sups Rucinski tion- rmoves foam, G10	Units 50% 400% 200% 200% 50%	C/Be joints Cost	staseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$188.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	10n 10/10/00 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work O h O h O h O h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h 4 h				
6.5.2	Ranila experience Ranila experience Ranila	ad Survey, Dis ad Survey, Dis assource Name eniorMechEngF eniorMechTechF apS uss Rucinski tion- moves foam, G10	Units 50% 400% 200% 200% 50%	C/Be joints Cost	staseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$188.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	10n 10/10/00 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work O h O h O h O h	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re 0 h 0 h 0 h 0 h 0 h	em. Work 4 h 32 h 16 h 16 h 4 h				
	Runlla experiments Runlla experi	ad Survey, Dissessource Name eniorMechEngFeniorMechEngFeniorMechTechFapN apS uss Rucinski	Units 50% 400% 200% 200% 50% 60% 10 for TLD',s re	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 emoves bellow	staseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	Mon 10/10/00 Work Ovt. 4 h 22 h 16 h 4 h 2 h compress and r	5 . Work Oh Oh Oh Oh Oh	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 10 h 10 h 10 h 10 h	t. Work Re O h O h O h O h O h O h O h O h	em. Work 4 h 32 h 16 h 16 h 4 h	low purge bags at E	C pipes. Make Rad sun	vey of beampipe regions.	
	Runlla experiments Runlla experi	ad Survey, Dis source Name eniorMechEngF eniorMechTechF apN sups Rucinski tion- rmoves foam, G10	Units 50% 400% 200% 200% 50% 60% 10 for TLD',s re	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 emoves bellow	staseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	10n 10/10/00 Work Ovt. 4 h 32 h 16 h 16 h 4 h	5 . Work Oh Oh Oh Oh Oh	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 0 h	t. Work Re O h O h O h O h O h O h O h O h	em. Work 4 h 32 h 16 h 16 h 4 h				
	Runlla experience Rac	ad Survey, Dissessource Name eniorMechEngFeniorMechTechFapN apS uss Rucinski tion-moves foam, G10	Units 50% 400% 200% 200% 50% 1 for TLD',s re	C/Be joints Cost B \$189.80 \$189.80 \$0.00 \$0.00 emoves bellow s were done of	siseline Cost \$0.00 \$0.0	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	Mon 10/10/00 Work Ovt. 4 h 22 h 16 h 4 h 2 h compress and r	5 . Work Oh Oh Oh Oh Oh	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 10 h 10 h 10 h 10 h	t. Work Re O h O h O h O h O h O h O h O h	em. Work 4 h 32 h 16 h 16 h 4 h	low purge bags at E	C pipes. Make Rad sun	vey of beampipe regions.	
	Runlla experience Rac	ad Survey, Dissessurce Name eniorMechTengF apN aps Rucinski tion-moves foam, G10	Units 50% 400% 200% 200% 50% 1 for TLD',s re	C/Be joints Cost B \$189.80 \$189.80 \$0.00 \$0.00 emoves bellow s were done of	siseline Cost \$0.00 \$0.0	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	Mon 10/10/00 Work Ovt. 4 h 22 h 16 h 4 h 2 h compress and r	5 . Work Oh Oh Oh Oh Oh	Mon 10/10/05 Baseline Work Act 0 h 0 h 0 h 0 h 0 h 10 h 10 h 10 h 10 h	t. Work Re O h O h O h O h O h O h O h O h	em. Work 4 h 32 h 16 h 16 h 4 h	low purge bags at E	C pipes. Make Rad sun	vey of beampipe regions.	
6.5.3	Runlla experimental Runlla experimental Research Research Research Runlla experimental Runlla Runl	ad Survey, Dis source Name eniorMechEngF eniorMechTechF apN sup Survey sup Su	Units 50% 400% 200% 50% 50% 50% Sometime in the interest of th	C/Be joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 emoves bellow s were done of	siseline Cost \$0.00 \$0.0	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 opens joints, c	10n 10/10/08 Work Ovt. 4 h 32 h 16 h 4 h 20 h 32 h 36	5 . Work 0 h 0 h 0 h 0 h 0 h	Mon 10/10/05 Baseline Work Act O h O h O h O h O h O h O h O h O h O h	t. Work Re O h O h O h O h O h O h O h O h O h O h	am. Work 4 h 32 h 16 h 16 h 4 h 20	low purge bags at E	C pipes. Make Rad sun	vey of beampipe regions.	
6.5.3	Runlla experimental Runlla experimental Research Research Research Runlla experimental Runlla Runl	ad Survey, Dis source Name eniorMechEngF eniorMechEngF apN aps sups Rucinski tion- eniore where thies ner Beampipe tion- tie beampipe disco	bunits 50% 400% 200% 200% 50% 50% In or TLD',s respectively.	COBE joints Cost B S189.80 S919.20 S0.00 S0.00 S0.00 swere done of	saseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 vs protectors at during 2004 shu	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	Mork Ovt. 4 h 22 h 16 h 4 h 24 h 36 h 36 h 4 h 36 h 4 h 36 h 4 h 37 h 38 h 39 h 39 h 30	5 . Work 0 h 0 h 0 h 0 h 0 h	Mon 10/10/05 Baseline Work Act Oh Oh Oh Oh Oh Mon 10/10/05 Mon 10/17/05	t. Work Re O h O h O h O h O h O h O h O h Source of Be pi	am. Work 4 h 32 h 16 h 16 h 4 h 20 h 00 00	\$0.00	C pipes. Make Rad sun \$0.00 \$6,574.00	\$0.00 \$6,574.00	
6.5.2 6.5.3 6.6 6.6.1	Runlla experiments of the second of the seco	ad Survey, Dis source Name eniorMechEngF eniorMechTechF apN sup Survey sup Su	bunits 50% 400% 200% 200% 50% 50% In or TLD',s respectively.	COBE joints Cost B S189.80 \$919.20 \$0.00 \$0.00 \$0.00 sweene done of the company o	saseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 vs protectors at during 2004 shu	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$tdown forms t	Rem. Cost \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 opens joints, c	Mork Ovt. 4 h 22 h 16 h 4 h 16 h 4 h 24 h 16 h 25 ompress and r 10 10/10/05 Tue 10/11/05	5 . Work 0 h 0 h 0 h 0 h 0 h	Mon 10/10/05 Baseline Work Act	t. Work Re O h O h O h O h O h O h O h Source of Be pi	am. Work 4 h 32 h 16 h 16 h 4 h 20	low purge bags at E	C pipes. Make Rad sun	vey of beampipe regions.	
6.5.3	Runlla experiments Runlla experiments	ad Survey, Dissessource Name eniorMechEngFeniorMechTechFapN apS uss Rucinski tion-moves foam, G10 erience where thiese tion-be beampipe disconsisted to be beampiped to be beampip	Units 50% 400% 200% 200% 50% 50% for TLD',s re see operation ces Discon connected from ter Beam s, Remove Units 150%	COBE joints Cost B \$189.80 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 swere done of the complete of th	saseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0	N Rem. Cost \$189.80 \$919.20 \$0.00	Mork Ovt. 4 h 22 h 16 h 4 h 24 h 32 h 16 h 4 h 34 h 36 h 36 h 36 h 4 h 37 h 38 h 39 h 39 h 30	5. Work 0 h 0 h 0 h 0 h 0 h 5.	Mon 10/10/05 Baseline Work Act	t. Work Re 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	am. Work 4 h 32 h 16 h 16 h 4 h 20 h 10 n 10 n	\$0.00 \$0.00	C pipes. Make Rad sun \$0.00 \$6,574.00	\$0.00 \$6,574.00	
3.5.3	Runlla experiments Runlla experiments	ad Survey, Dissessource Name eniorMechEngFeniorMechTechFapN aps uss Rucinski tion-moves foam, G10 - rrience where thiese tion-moves foam, G10 isconnect Out lose EC's, EF's eniorMechTechFapFeniorMechTechFeniorM	Units 50% 400% 200% 200% 50% 1 for TLD',s re se operation ter Beam s, Remove Units 150% 600% 50%	C/Be joints Cost	Saseline Cost	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	N Rem. Cost \$189.80 \$919.20 \$0.00	Mork Ovt. 4 h 22 h 16 h 16 h 4 h 24 h 17 h 18 h 18 h 19	5 . Work Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh	Mon 10/10/05 Baseline Work	t. Work Re O h O h O h O h O h O h O h O h O h O h	em. Work 4 h 32 h 16 h 16 h 16 h 4 h Dee, and outt 0.00 0.00 0.00 Rem. Work 48 h 4 h	\$0.00 \$0.00	C pipes. Make Rad sun \$0.00 \$6,574.00	\$0.00 \$6,574.00	
i.5.3	Runlla experiments Runlla experiments Ras	ad Survey, Dis ssource Name sniorMechEngF spN spS	Units 50% 400% 200% 200% 50% If or TLD',s re se operation connected from ter Beam s, Remove Units 150% 600%	### Cost B S789.80 S919.20 \$0.00 \$0.	laseline Cost	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$tdown forms t	N Rem. Cost \$189.80 \$919.20 \$0.00	Mork Ovt. 4 h 22 h 16 h 16 h 16 h 24 h 25 h 26 h 27 h 28 h 28 h 29 h 20	5. Work Oh	Mon 10/10/05 Baseline Work	t. Work Re O h O h O h O h O h O h O h O h O h O h	##. Work 4 h 32 h 16 h 16 h 4 h 20 h 20 h 20 h 40 h 40 h 40 h 40 h 40 h	\$0.00 \$0.00	C pipes. Make Rad sun \$0.00 \$6,574.00	\$0.00 \$6,574.00	

M&S EQ M&S Labor WBS Name Start Finish FNAL Labor **Total Cost** EF's, Remove SNEG Pipes" continued Notes M&S BOE-Labor BOE-Runlla experience where this task was done during 2004 shutdown forms the basis of estimate. 1.5.6.6.2 Wed 10/12/05 Thu 10/13/05 \$0.00 \$0.00 \$3,137.20 \$3,137.20 Open EF's, Open EC's, Install TempMon Cables, Drain Si Coo Ovt. Work Baseline Work Act. Work Rem. Work Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work 11 PhysicistF 20% \$0.00 \$0.00 \$0.00 3.2 h 3.2 h 39 SeniorMechEngF 50% \$379.60 \$0.00 \$0.00 \$379.60 8 h 0 h 0 h 0 h 8 h SeniorMechTechF 600% \$2,757.60 \$0.00 \$0.00 \$2,757.60 96 h 0 h 0 h 0 h 40 49 50 55 59 GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 32 h 0 h 0 h 0 h 0 h 32 h 200% \$0.00 32 h 0 h 32 h GapS \$0.00 \$0.00 \$0.00 0 h 0 h Linda Bagby Russ Rucinski 20% \$0.00 \$0.00 \$0.00 \$0.00 3.2 h 0 h 0 h 3.2 h 50% \$0.00 \$0.00 \$0.00 \$0.00 0 h 0 h 0 h 8 h 8 h WBS Definition-This task opens EF's, opens EC's, installs gap access hardware (scaffolds, lighting). Take advantage of open gaps to install temperature monitoring cables for the L0 detector (12 cbles from horseshoe area to DMarkley chassis in Platform). Shut off and drain silicon cooling system (check tritium content of coolant). M&S BOE-NA Labor BOE-Runlla experience where opening detector was done repeatedly forms the basis of estimate. 1.5.6.6.3 \$0.00 \$0.00 Power Outage in Collision Hall Fri 10/14/05 Fri 10/14/05 \$0.00 \$0.00 WBS Definition-This task provides 1-day window for power outage in collision hall. M&S BOE-Labor BOE-1.5.6.6.4 \$0.00 \$0.00 \$1,488.60 \$1,488.60 Cut Off Inner EC Beampipes, Purge Si Coolant lines Mon 10/17/05 Mon 10/17/05 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 39 \$569.40 SeniorMechEnaF 150% \$0.00 \$0.00 \$569.40 12 h 12 h 40 SeniorMechTechF 400% \$919.20 \$0.00 \$0.00 \$919.20 32 h 0 h 32 h 0 h 0 h 49 50 GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 59 94 Russ Rucinski 50% \$0.00 \$0.00 \$0.00 \$0.00 4 h 0 h 0 h 0 h 4 h \$0.00 Dan Olis 100% \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h Notes WBS Definition-This task cuts EC beampipe cuffs at reducers, measures temperataures of EC beampipes, reestablishes purge in beampipes, purge silicon coolant lines. M&S BOE-NA Runlla experience working with beampipes in the gaps forms the basis of estimate. 1.5.6.7 Mon 10/17/05 Mon 10/17/05 \$0.00 \$0.00 \$0.00 \$0.00 **Outer Beampipes Disconnected** Milestone-Ready for removal of inner, outer H-disks. 1.5.6.8 Remove H-disks Tue 10/18/05 Mon 10/24/05 \$0.00 \$0.00 \$7,443.00 \$7,443.00 Notes
WBS Definition-

M&S EQ WBS Name Start Finish M&S Labor FNAL Labor **Total Cost** "Remove H-disks" continued This summary task uncables and removes H-disks. 1.5.6.8.1 Remove Be Pipe support and make Be Assay Tue 10/18/05 Tue 10/18/05 \$0.00 \$0.00 \$0.00 \$0.00 WBS Definition-This task removes split Rohacell Be beam pipe supports, and makes Be assy of newly exposed Be beampipe. M&S BOE-Labor BOE-Estimates are based on Run2a installation, experience, reduced by considerations of the expected simpler task of removal as compared with installation. Resources loaded in following task. 1.5.6.8.2 Uncable & Remove N&S Outer H-Disks Tue 10/18/05 Thu 10/20/05 \$0.00 \$0.00 \$4,465.80 \$4,465,80 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 \$0.00 \$0.00 Physicisti \$0.00 \$0.00 30 h 30 h 39 SeniorMechEngF 150% \$1,708.20 \$0.00 \$0.00 \$1,708.20 0 h 0 h 36 h 36 h 0 h 40 49 SeniorMechTechF 400% \$2,757.60 \$0.00 \$0.00 \$2,757.60 96 h 0 h 0 h 0 h 96 h GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 48 h 0 h 0 h 0 h 48 h 50 55 56 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 48 h 0 h 0 h 0 h 48 h Linda Bagby 100% \$0.00 \$0.00 \$0.00 \$0.00 24 h 0 h 0 h 0 h 24 h Dave Butler 100% \$0.00 \$0.00 \$0.00 \$0.00 24 h 0 h 0 h 24 h 0 h 58 Bill Cooper 25% \$0.00 \$0.00 \$0.00 \$0.00 6 h 0 h 0 h 0 h 6 h 94 Dan Olis 50% \$0.00 \$0.00 \$0.00 \$0.00 12 h 0 h 0 h 0 h 12 h 95 Joe Howell 100% \$0.00 \$0.00 \$0.00 \$0.00 24 h 0 h 0 h 0 h 24 h Notes WBS Definition-This task disconnects air purge and coolant lines to N&S outer H-disks, disconnects and removes the low mass cables (24 per side), installs the H-disk removal fixture, and removes the outer H-disks from CFT barrel 3. The H disks are inserted in existing handling cases and removed from the work area. Change H-disk coolant flow nozzels for L0 if necessary. Remap the low mass cables from the inner H-disks at the adapter cards. It is assumed this work can proceed while the results of the Be assay on the beampipe are pending. M&S BOE-NA Labor BOE-Estimates are based on Run2a installation experience, reduced by considerations of the expected simpler task of removal as compared with installation. 1.5.6.8.3 Uncable & Remove N&S Inner H-Disks. Be assay of BP Fri 10/21/05 Mon 10/24/05 \$0.00 \$0.00 \$2.977.20 \$2.977.20 ID Resource Name Units Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work Cost 11 PhysicistF 125% \$0.00 \$0.00 \$0.00 \$0.00 20 h 0 h 0h20 h \$1,138.80 SeniorMechEngF 39 40 150% \$0.00 \$0.00 \$1.138.80 24 h 0 h 0 h 0 h 24 h SeniorMechTechF 400% \$1,838.40 \$0.00 \$0.00 \$1,838.40 64 h 0 h 0 h 0 h 64 h 200% 32 h 0 h 32 h GapN \$0.00 \$0.00 \$0.00 0 h 0 h 50 55 56 58 200% \$0.00 \$0.00 \$0.00 \$0.00 32 h 0 h 0 h 0 h 32 h GapS Linda Baaby 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h Dave Butler 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0h0hΩh 16 h Bill Cooper 25% \$0.00 \$0.00 \$0.00 \$0.00 4 h 0 h 0 h 0 h 4 h 50% \$0.00 \$0.00 \$0.00 8 h 0 h 0 h Dan Olis \$0.00 0 h 8 h 95 Joe Howell 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 98 Sasha Leflat 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h Notes This task isolates N&S inner H-disk air and coolant lines, decables the disks (temporarily dresses cables to out-of-the-way locations), installs the H-disk removal fixture, and removes the inner Hdisks from CFT barrel 3. The task assumes the Be assay of the beampipe was permissive. The H disks are inserted in existing handling cases and removed from the work area. Make Be wijpes of exposed Be beampipe. M&S BOE-NA Labor BOE-Estimates are based on Run2a installation experience, reduced by considerations of the expected simpler task of removal as compared with installation. 1.5.6.9 **H-disks Removal Complete** Mon 10/24/05 Mon 10/24/05 \$0.00 \$0.00 \$0.00 \$0.00 WBS Definition-Milestone-H-disk Removal Complete

5.6.10		Name							Start	Finis	sh	M&S EQ	M&S Labor	FNAL Labor	Total Cost
		Remove Run I	la Be Bea	ampipe, L	oad Long L0	Insertion 1	oc	Tue 10/	25/05	Mon 10/31/0)5	\$0.00	\$0.00	\$6,925.40	\$6,925.40
	Notes				_										
		efinition-													
	This sur	mmary task removes	Runlla Be E	Beampipe.											
5.6.10.1		Install Runlla B	le BP Han	ndling Fixtu	ıre in S Gap,	Brunson in	N (Tue 10/	25/05	Tue 10/25/0	05	\$0.00	\$0.00	\$1,408.60	\$1,408.60
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work		* /	, , , , , , , , , , , , , , , , , , , ,
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h		-		
	39	SeniorMechEngF	250%	\$949.00	\$0.00	\$0.00	\$949.00	20 h	0 h	0 h	0 h	20 h			
	40	SeniorMechTechF	200%	\$459.60	\$0.00	\$0.00	\$459.60	16 h	0 h	0 h	0 h				
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h				
	56	Dave Butler	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h				
	58 59	Bill Cooper	50%	\$0.00	\$0.00	\$0.00	\$0.00 \$0.00	4 h	0 h	0 h	0 h				
	59 64	Russ Rucinski	100%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00	8 h 8 h	0 h 0 h	0 h	0 h				
	74	Dennis Graham Youri Orlov	100% 50%	\$0.00 \$0.00	\$0.00	\$0.00	\$0.00	8 n 4 h	0 h	0 h 0 h	0 h 0 h				
	93	Mike Roman	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h				
	94	Dan Olis	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h				
				*****	*****	*****									
	Notes														
		efinition-				_									
	This tas	k installs the Runlla	beampipe h	andling fixtu	e in the S gap, n	nounts Brunso	n in N gap to s	ight cleara	ances of beam	pipe during removal	l.				
	M&S BO	DE-													
	NA														
	Labor B														
	Runlla	experience from original	inal Be pipe	installation.											
6.10.2		Remove Be pip	e support	s, Retract	Be pipe to SE	С	1	Wed 10/	26/05	Wed 10/26/0)5	\$0.00	\$0.00	\$1,218.80	\$1,218.80
		Resource Name		Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work		. ,	
	ID		Units												
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h				
	11 39	PhysicistF SeniorMechEngF	50% 200%	\$0.00 \$759.20	\$0.00 \$0.00	\$0.00 \$0.00	\$759.20	16 h	0 h	0 h	0 h	16 h			
	11 39 40	PhysicistF SeniorMechEngF SeniorMechTechF	50% 200% 200%	\$0.00 \$759.20 \$459.60	\$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00	\$759.20 \$459.60	16 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	16 h 16 h			
	11 39 40 49	PhysicistF SeniorMechEngF SeniorMechTechF GapN	50% 200% 200% 200%	\$0.00 \$759.20 \$459.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00	16 h 16 h 16 h	0 h 0 h 0 h	0 h 0 h 0 h	0 h 0 h 0 h	16 h 16 h 16 h			
	11 39 40 49 50	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS	50% 200% 200% 200% 200%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00	16 h 16 h 16 h 16 h	0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h			
	11 39 40 49 50 56	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler	50% 200% 200% 200% 200% 100%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h	0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h			
	11 39 40 49 50 56 58	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper	50% 200% 200% 200% 200% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h	0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h			
	11 39 40 49 50 56 58 59	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski	50% 200% 200% 200% 200% 100% 50% 100%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h			
	11 39 40 49 50 56 58 59 64	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham	50% 200% 200% 200% 200% 100% 50% 100%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h			
	11 39 40 49 50 56 58 59 64 74	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov	50% 200% 200% 200% 200% 100% 50% 100% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h			
	11 39 40 49 50 56 58 59 64 74 94	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham	50% 200% 200% 200% 200% 100% 50% 100%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h			
	11 39 40 49 50 56 58 59 64 74 94 Notes	PhysicistF SenionMechEngF SenionMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis	50% 200% 200% 200% 200% 100% 50% 100% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h			
	11 39 40 49 50 56 58 59 64 74 94 Notes WBS Do	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Denis Graham Youri Orlov Dan Olis efinition-	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 16 h 8 h 8 h 8 h 4 h 4 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h			
	11 39 40 49 50 56 58 59 64 74 94 Notes WBS Do This tas	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and es
	11 39 40 49 50 56 58 59 64 74 94 Notes WBS Do This tas	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Denis Graham Youri Orlov Dan Olis efinition-	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and es
	11 39 40 49 50 56 58 59 64 74 94 <u>Notes</u> WBS Do This tass purge ir	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be SEC beampipe. Re	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and es
	111 39 40 49 50 56 58 59 64 74 94 Notes WBS Do This tas purge ir	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be SEC beampipe. Re	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and est
	11 39 40 49 50 56 58 59 64 74 94 <u>Notes</u> WBS Do This tass purge ir	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be SEC beampipe. Re	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and est
	111 39 40 49 50 56 58 59 64 74 94 Notes WBS Di This tas purge ir M&S BC NA	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k removes the S Be SEC beampipe. Re	50% 200% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and est
	111 39 40 49 50 56 58 59 64 94 Motes WBS Do This tas purge ir M&S BO NA Labor B	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Offis efinition- ik removes the S Be SEC beampipe. Re DE-	50% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and es
	111 39 40 49 50 56 58 59 64 94 Motes WBS Do This tas purge ir M&S BO NA Labor B	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k removes the S Be SEC beampipe. Re	50% 200% 200% 200% 100% 50% 100% 50% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	Oh	Oh Oh Oh Oh Oh Oh Oh Oh	OhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOhOh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h	he N Si support mer	nbrane, continue sliding	Be pipe into SEC beampipe and est
	111 39 40 49 50 56 58 59 64 94 Motes WBS Do This tas purge ir M&S BO NA Labor B	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k removes the S Be SEC beampipe. Re DE- COE- experience from orig	50% 200% 200% 200% 100% 50% 50% 50% supports fro move beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	16 h 16 h 16 h 8 h 8 h 4 h 4 h 4 h 4 h attaches f	Oh Oh Oh Oh Oh Oh Oh Oh Oh	oh oh oh oh oh oh oh oh	Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h 4 h 4 c C closes.			
	111 39 40 49 50 56 58 59 64 74 WBS D This tas purge ir M&S BO NA Labor B Runlla	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k removes the S Be n SEC beampipe. Re DE- COE- experience from orig	50% 200% 200% 200% 100% 50% 50% 50% supports fro move beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$2.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h 16 h 16 h 16 h 8 h 8 h 4 h 4 h 4 h attaches I impipe for	O h O h O h O h O h O h O h O h O h O h	of beampipe, remo	oh o	16 h 16 h 16 h 16 h 18 h 4 h 8 h 4 h 4 h 4 h C closes.	he N Si support mer	mbrane, continue sliding	Be pipe into SEC beampipe and est
	111 39 40 49 50 56 58 59 64 74 94 Notes WBS Di This tas purge ir M&S BC NA Labor B Runlla o	PhysicistF SenionMechEngF SenionMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be n SEC beampipe. Re DE- ENECT SEC BEAMPIPE. Re DE- INCE- EXPERIENCE From orig Install New Add Resource Name	50% 200% 200% 200% 100% 100% 100% 50% 50% supports fro move beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h 16 h 16 h 16 h 8 h 4 h 8 h 4 h 4 h attaches 1 Impipe for	Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh Oh O	of beampipe, remorance to Si membra	Oh O	16 h 16 h 16 h 16 h 18 h 4 h 8 h 4 h 4 h 4 h 4 h C closes.			
	111 39 40 49 50 56 58 59 64 74 WBS D. This tas purge ir M&S BC NA Labor B Runlla o	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- sk removes the S Be SEC beampipe. Re DE- DE- SOE- experience from orig Install New Ada Resource Name	50% 200% 200% 200% 100% 50% 100% 50% 100% 50% supports fromove beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$2.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h	O h O h O h O h O h O h O h O h O h O h	of beampipe, remorance to Si membra Mon 10/31// Baseline Work	Oh O	16 h 16 h 16 h 16 h 18 h 4 h 8 h 8 h 4 h 4 h C closes.			
	111 39 40 49 50 56 58 59 64 74 94 Notes WBS Di This tas purge ir M&S BC NA	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Oils efinition- ik removes the S Be n SEC beampipe. Re DE- DE- IOE- experience from orig Install New Ada Resource Name Elec TechSF PhysicistF	50% 200% 200% 200% 100% 100% 150% 50% 50% 50% supports fro move beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h	Oh O	Mon 10/31/0 Baseline Work Oh	Oh O	16 h 16 h 16 h 16 h 16 h 18 h 4 h 8 h 4 h 4 h 4 h C closes.			
	111 39 40 49 50 56 58 59 64 74 WBS D. This tass purge ir M&S BC NA Labor B Runlla o	PhysicistF Senion/MechEngF Senion/MechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- ik removes the S Be n SEC beampipe. Re DE- DE- INCE- experience from orig Install New Add Resource Name ElecTechSF PhysicistF SeniorElecTechF	50% 200% 200% 200% 50% 100% 50% 55% supports fro move beam inal Be pipe apter Carc Units 100% 100% 100% 20%	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h	27/05 Ovt. Work Oh	of beampipe, remorance to Si membra Mon 10/31/(Baseline Work Oh Oh Oh Oh	oh o	16 h 16 h 16 h 16 h 18 h 4 h 8 h 8 h 4 h 4 h 4 h 2 h 1			Be pipe into SEC beampipe and est.
	111 39 40 49 50 56 58 59 64 74 94 Notes WBS Di This tas purge ir M&S BC NA	PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Oils efinition- ik removes the S Be n SEC beampipe. Re DE- DE- IOE- experience from orig Install New Ada Resource Name Elec TechSF PhysicistF	50% 200% 200% 200% 100% 100% 150% 50% 50% 50% supports fro move beam	\$0.00 \$759.20 \$459.60 \$0.00 \$0	\$0.00 \$0.00	\$0.00 \$0.00	\$759.20 \$459.60 \$0.00 \$0	16 h	27/05 Ovt. Work Oh	Mon 10/31/0 Baseline Work Oh	Oh O	\$0.00 \$0.00 Rem. Work 24h 48h 4			

Notes

Notes
WBS DefinitionThis task removes the Brunson from the N gap, removes old Adapter Cards and standoffs, installs new standoffs and AC's, installs LV and Temp Mon AWG-change panels, connects 12 10AWG LV cable from fuse panel to AWG-change panel, 22 AWG jumpers from AWG-change panel to AC. Operates power supplies.
Time is allowed to test AC's with walking Junction card.

M&S BOE-

Labor BOE-

Runlla experience from original AC installation forms the basis of estimate for effort.

BS		Name							art	Finish	•	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
6.10.4		Close SEC, EF	S, Install	SEF Scaffo	lds			Thu 10/27/	05	Thu 10/27/05	5	\$0.00	\$0.00	\$1,488.60	\$1,488.60	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost		vt. Work	Baseline Work	Act. Work	Rem. Work	_			
	11 39	PhysicistF SeniorMechEngF	20% 150%	\$0.00 \$569.40	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$569.40	1.6 h 12 h	0 h 0 h	0 h 0 h	0 h 0 h	1.6 h 12 h				
	40	SeniorMechTechF	400%	\$919.20	\$0.00	\$0.00	\$919.20	32 h	0 h	0 h	0 h	32 h				
	49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				
	56 58	Dave Butler Bill Cooper	100% 20%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	8 h 1.6 h	0 h 0 h	0 h 0 h	0 h 0 h	8 h 1.6 h				
	59	Russ Rucinski	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h	4 h				
	64	Dennis Graham	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h				
	74 93	Youri Orlov Mike Roman	50% 50%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	4 h 4 h	0 h 0 h	0 h 0 h	0 h 0 h	4 h 4 h				
			30%	\$0.00	\$0.00	\$0.00	\$0.00	411	UII	0 II	UII	411				
	This tas	efinition- sk removes the S gap	fixture and	access hardw	rare, closes ECS	S and SEF, er	ects scaffolds	at downstream	n end of SEF	F (E side) and muon	shield brid	ge arms.				
	NA Labor B Runlla	BOE- experience from origin	nal Be pipe	installation ar	d manipulation	of EC's forms	the basis of es	stimate for effo	ort.							
5.6.10.5		Remove Runlla						Fri 10/28/		Fri 10/28/05	;	\$0.00	\$0.00	\$649.40	\$649.40	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost		vt. Work		Act. Work	Rem. Work	*****	+	*	
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h	4 h	-			
	39	SeniorMechEngF	50%	\$189.80	\$0.00	\$0.00	\$189.80	4 h	0 h	0 h	0 h	4 h				
	40 56	SeniorMechTechF Dave Butler	200% 100%	\$459.60 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$459.60 \$0.00	16 h 8 h	0 h 0 h	0 h 0 h	0 h 0 h	16 h 8 h				
	58	Bill Cooper	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h	4 h				
	59 64	Russ Rucinski Dennis Graham	50% 100%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	4 h 8 h	0 h 0 h	0 h 0 h	0 h 0 h	4 h 8 h				
	74	Youri Orlov	50%	\$0.00	\$0.00	\$0.00	\$0.00	8 n 4 h	0 h	0 h	0 h	8 n 4 h				
	This tas M&S BO NA Labor B	OE- BOE-					-	O Installation to	ool in ECS,	reestablishes purge	of SEC bea	ampipe. Remov	e Be pipe from Collii	sion Hall, store in Si coo	ling equipment cage.	
	WBS DO This tas M&S BO NA Labor B	sk unblanks SEC bear OE-	nal Be pipe	installation fo	ms the basis of		-	O Installation to		reestablishes purge		ampipe. Remov	e Be pipe from Collise	sion Hall, store in Si coo	ling equipment cage.	
5.6.11	WBS Do This tas M&S BO NA Labor B Runlla o	sk unblanks SEC bear OE- BOE- experience from origin	nal Be pipe	installation fo	ms the basis of		-									
5.6.11	WBS DO This tas M&S BO NA Labor B Runlla o	sk unblanks SEC bear OE- BOE- experience from origin Run IIa Beamp	nal Be pipe	installation for	ms the basis of		-									
5.6.11	WBS Do This tas M&S BO NA Labor B Runlla o Notes WBS Do Milestor	Sk unblanks SEC bear OE- BOE- experience from origin Run IIa Beamp definition- ne-RunIIa Be pipe rer Load L0 in ECI	nal Be pipe ipe Reme	installation for oval Comp	ms the basis of		-		05		5					
5.6.11	WBS DO This tas M&S BO NA Labor B Runlla of Motes WBS DO Mileston Motes WBS DO MILESTON MILE	Sk unblanks SEC bear OE- BOE- experience from origin Run IIa Beamp definition- ne-RunIIa Be pipe rer Load L0 in ECI	nal Be pipe ipe Remo moval comp	installation for oval Completed.	ms the basis of	estimate for e	-	Fri 10/28/	05	Fri 10/28/0	5	\$0.00	\$0.00	\$0.00	\$0.00	
5.6.11	WBS DO This tas M&S BO NA Labor B Runlla of Motes WBS DO Mileston Motes WBS DO MILESTON MILE	Sk unblanks SEC bear OE- BOE- experience from origin Run IIa Beamp Definition- ne-RunIIa Be pipe rer Load L0 in ECI Definition-	nal Be pipe ipe Remo moval comp N Beamp	installation for oval Comp leted. ipe	ms the basis of lete	estimate for e	offort.	Fri 10/28/	05	Fri 10/28/0	i	\$0.00	\$0.00	\$0.00	\$0.00	
5.6.11	WBS DOTTHIS tas M&S BO NA Labor B Runlla of Notes WBS D Milestor Notes WBS D This sur	Sk unblanks SEC bear OE- 3OE- experience from origin Run Ila Beamp lefinition- ne-Runlla Be pipe rer Load L0 in ECI lefinition- mmary task brings L0 Open SEF, SEC Resource Name	nal Be pipe ipe Rem moval comp N Beamp to DAB and Units	installation for oval Composite letted. ipe d loads it in the cost	ms the basis of lete e NEC beampip on Fixtures ir Baseline Cost	estimate for e	Rem. Cost	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work	05 05 05 Ovt. Work	Tue 11/1/08 Tue 11/1/08 Baseline Work	Act. Work	\$0.00 \$0.00 \$0.00 Rem. Work	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.11 5.6.12	WBS DOT This tas M&S BO NA Labor B Runlla of Motes WBS DO Milestor MBS DO This sur	Sk unblanks SEC bear OE- OE- SOE- experience from origin Run Ila Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF	nal Be pipe ipe Removal comp N Beamp to DAB and Units 50%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00	ms the basis of lete e NEC beampip on Fixtures in Baseline Cost	estimate for e	Rem. Cost	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8 h	05 05 005 0vt. Work 0 h	Tue 11/8/05 Tue 11/1/05 Baseline Work 0 h	Act. Work	\$0.00 \$0.00 \$0.00 Rem. Work	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.11	WBS DOTTHIS tas M&S BO NA Labor B Runlla of Notes WBS D Milestor Notes WBS D This sur	Sk unblanks SEC bear OE- 3OE- experience from origin Run Ila Beamp lefinition- ne-Runlla Be pipe rer Load L0 in ECI lefinition- mmary task brings L0 Open SEF, SEC Resource Name	nal Be pipe ipe Rem moval comp N Beamp to DAB and Units	installation for oval Composal	ms the basis of lete e NEC beampip on Fixtures ir Baseline Cost	estimate for e	Rem. Cost \$0.00 \$1,518.44	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 5 8 h 2 2 h	05 05 05 Ovt. Work	Tue 11/1/08 Tue 11/1/08 Baseline Work	Act. Work	\$0.00 \$0.00 \$0.00 Rem. Work	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.11	MBS DOTTHIS TABLE TO THE TABLE TABLE TO THE TABLE T	Sk unblanks SEC bear OE- 30E- experience from origin Run IIa Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechTechF GapS	mal Be pipe ipe Rem moval comp N Beamp to DAB and Units 50% 400%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$1,838.40 \$0.00	e NEC beampip on Fixtures in Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.44 \$1,838.44	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8 h 0 32 h 0 44 h 0 32 h	05 05 Ovt. Work 0 h 0 h 0 h	Tue 11/8/05 Tue 11/1/05 Baseline Work Oh Oh Oh	Act. Work	\$0.00 \$0.00 \$0.00 Rem. Work 8h 32 h 64h 32 h	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.11	MBS Do This tas M&S BC NA Labor B Runlla o Notes WBS Do Mileston Notes WBS Do This sur	Sk unblanks SEC bear OE- 3OE- experience from origin Run IIa Beamp Definition- ne-Runlla Be pipe rer Load L0 in ECI Definition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapS Bill Cooper	nal Be pipe ipe Rem moval comp N Beamp to DAB and Units 50% 200% 400% 50%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$0.00 \$0.00 \$0.00	e NEC beampip on Fixtures in Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.4 \$1,838.4 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 3 2 h 3 2 h 4 4 h 3 2 h 3 2 h 3 2 h	05 05 05 Ovt. Work 0h 0h 0h	Tue 11/8/05 Tue 11/1/05 Baseline Work 0h 0h 0h 0h 0h	Act. Work	\$0.00 \$0.00 \$0.00 Rem. Work 8 th 64 th 52 th 8 th	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
i.6.11	MBS DOTTHIS TABLE TO THE TABLE TABLE TO THE TABLE T	Sk unblanks SEC bear OE- 30E- experience from origin Run IIa Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechTechF GapS	mal Be pipe ipe Rem moval comp N Beamp to DAB and Units 50% 400%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$1,838.40 \$0.00	e NEC beampip on Fixtures in Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.44 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8h 0 2h 0 3h 0 3h 0 3h 0 16h	05 05 Ovt. Work 0 h 0 h 0 h	Tue 11/8/05 Tue 11/1/05 Baseline Work Oh Oh Oh	Act. Work	\$0.00 \$0.00 Rem. Work 81 32 h 64 h 85 16 h	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.11	MBS Di This tas M&S BO NA Labor B Runlla of MIlestor MBS Di Milestor MBS Di This sur ID 11 39 40 50 58 74 93	Sk unblanks SEC bear OE- 30E- experience from origin Run IIa Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapS Bill Cooper Youri Orlov	nal Be pipe ipe Removal comp N Beamp I to DAB and Units 50% 200% 400% 50% 100%	installation for oval Comp leted. ipe d loads it in th Cost St.518.40 \$1.518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	e NEC beampip Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.44 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8h 0 2h 0 3h 0 3h 0 3h 0 16h	05 05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Tue 11/8/05 Tue 11/8/05 Tue 11/1/05 Baseline Work Oh Oh Oh Oh Oh	Act. Work	\$0.00 \$0.00 Rem. Work 81 32 h 64 h 85 16 h	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.12 5.6.12	MBS Do This tas M&S BC NA Labor B Runlla o Motes WBS Do Milestor MBS Do This sure MBS Do T	Sk unblanks SEC bear OE- 3OE- experience from origin Run Ila Beamp lefinition- ne-Runlla Be pipe rer Load L0 in ECI efinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechTechF GapS SeniorMechTechF GapS Selil Cooper Your Orlov Mike Roman	nal Be pipe ipe Removal comp N Beamp I to DAB and Units 50% 200% 400% 50% 100%	installation for oval Comp leted. ipe d loads it in th Cost St.518.40 \$1.518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	e NEC beampip Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.44 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8h 0 2h 0 3h 0 3h 0 3h 0 16h	05 05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Tue 11/8/05 Tue 11/8/05 Tue 11/1/05 Baseline Work Oh Oh Oh Oh Oh	Act. Work	\$0.00 \$0.00 Rem. Work 81 32 h 64 h 85 16 h	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.12 5.6.12	Notes	Sk unblanks SEC bear OE- 30E- experience from origin Run IIa Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapS Bill Cooper Youri Orlov	nal Be pipe ipe Removal comp N Beamp to DAB and Units 50% 200% 200% 100%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	e NEC beampip Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.4 \$1,838.4 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8 h 0 32 h 0 32 h 0 8 h 0 8 h 0 16 h 16 h	05 Ovt. Work Oh Oh Oh Oh Oh Oh Oh	Tue 11/8/05 Tue 11/1/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h	Act. Work 01 01 01 01 01 01	\$0.00 \$0.00 Rem. Work 8 ft 32 ft 6 ft 16 ft	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.12 5.6.12	MBS Di This tas M&S BO NA Labor B Runlla o MBS Di Milestor MBS Di This sur ID 11 39 40 50 58 74 93 Notes WBS Di This sur Notes WBS Di This sur Notes WBS Di This sur Notes WBS Di This sur Notes WBS Di This sur Notes WBS Di This sur Notes WBS Di This sur Notes	sk unblanks SEC bear OE- OE- SOE- experience from origin Run Ila Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechEnger SeniorMechEnger GapS Bill Cooper Youri Orlov Mike Roman	nal Be pipe ipe Removal comp N Beamp to DAB and Units 50% 200% 200% 100%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	e NEC beampip Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.4 \$1,838.4 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8 h 0 32 h 0 32 h 0 8 h 0 8 h 0 16 h 16 h	05 Ovt. Work Oh Oh Oh Oh Oh Oh Oh	Tue 11/8/05 Tue 11/1/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h	Act. Work 01 01 01 01 01 01	\$0.00 \$0.00 Rem. Work 8 ft 32 ft 6 ft 16 ft	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	
5.6.12 5.6.12.1	Notes No	sk unblanks SEC bear OE- OE- SOE- experience from origin Run Ila Beamp refinition- ne-Runlla Be pipe rer Load L0 in ECI refinition- mmary task brings L0 Open SEF, SEC Resource Name PhysicistF SeniorMechEnger SeniorMechEnger GapS Bill Cooper Youri Orlov Mike Roman	nal Be pipe ipe Removal comp N Beamp to DAB and Units 50% 200% 200% 100%	installation for oval Comp leted. ipe d loads it in th Cost \$0.00 \$1,518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	e NEC beampip Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	estimate for e	Rem. Cost \$0.00 \$1,518.4 \$1,838.4 \$0.00 \$0.00 \$0.00	Fri 10/28/ Fri 9/9/ Mon 10/31/ Work 0 8 h 0 32 h 0 32 h 0 8 h 0 8 h 0 16 h 16 h	05 Ovt. Work Oh Oh Oh Oh Oh Oh Oh	Tue 11/8/05 Tue 11/1/05 Baseline Work 0 h 0 h 0 h 0 h 0 h 0 h	Act. Work 01 01 01 01 01 01	\$0.00 \$0.00 Rem. Work 8 ft 32 ft 6 ft 16 ft	\$0.00 \$0.00	\$0.00 \$13,424.72	\$0.00 \$13,424.72	

BS		Name						Sta		Finish	N	/I&S EQ	M&S Labor	FNAL Labor	Total Cost
.6.12.2		Install New Ada	apter Card	ls in S Gap				Wed 11/2/0	5	Fri 11/4/05		\$0.00	\$0.00	\$1,440.00	\$1,440.00
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost		rt. Work		ct. Work	Rem. Work	=		
	11 38	PhysicistF SeniorElecTechF	100% 200%	\$0.00 \$1,440.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$1,440.00	24 h 48 h	0 h 0 h	0 h 0 h	0 h 0 h	24 h 48 h			
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	48 h	0 h	0 h	0 h	48 h			
	55	Linda Bagby	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	Notes														
	power s	k removes old AC's supplies. allowed to test AC's				AC's, installs L	V and Temp N	lon AWG-char	ige panels	, connects 12 10AWG	G LV cable	from fuse pane	to AWG-change pa	nel, 22 AWG jumpers fro	om AWG-change panel to AC. Op
	Labor B	OE- experience from origi	nal AC insta	Illation forms	the basis of estim	ate for effort.									
6.12.3		Close NEC, NE						Tue 11/1/0		Wed 11/2/05		\$0.00	\$0.00	\$2,833.52	\$2,833.52
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost		vt. Work		Act. Work	Rem. Work	_		
	39 40	SeniorMechEngF SeniorMechTechF	10% 600%	\$75.92 \$2,757.60	\$0.00 \$0.00	\$0.00 \$0.00	\$75.92 \$2,757.60	1.6 h 96 h	0 h 0 h	0 h 0 h	0 h 0 h	1.6 h 96 h			
	49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	0 h	32 h			
	59	Russ Rucinski	10%	\$0.00	\$0.00	\$0.00	\$0.00	1.6 h	0 h	0 h	0 h	1.6 h			
	Notes														
		efinition-									==				
	This tas	k removes N gap ac	cess hardwa	ire, closes NE	C, closes NEF, e	extends the m	uon shielding b	oridge arms, er	ects scaffo	olds at downstream sid	de of NEF	(E side).			
	M&S BO	DE-													
	INA														
	Labor B														
	Runlla e	experience manipula	tion EC's an	d EF's.											
								TI 11/0/0		TI 44/0/07					
6.12.4		Mount L0 Instal			•	•		Thu 11/3/0		Thu 11/3/05		\$0.00	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work Ov	t. Work	Baseline Work Ad	ct. Work	Rem. Work	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID 11	Resource Name PhysicistF	Units 50%	Cost \$0.00	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$0.00	Work Ov	t. Work 0 h	Baseline Work Ac	0 h	Rem. Work	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID 11 39 40	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF	Units 50% 200% 200%	\$0.00 \$759.20 \$459.60	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60	Work Ov. 4 h 16 h 16 h	0 h 0 h 0 h 0 h	Baseline Work Ad	0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID 11 39 40 56	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler	Units 50% 200% 200% 100%	\$0.00 \$759.20 \$459.60 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00	Work Ov. 4 h 16 h 16 h 8 h	0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID 11 39 40 56 58	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper	Units 50% 200% 200% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h	0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h	\$0.00	\$1,218.80	\$1,218.80
5.12.4	ID 11 39 40 56 58 59 64	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham	Units 50% 200% 200% 100% 50% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h	0 h 0 h 0 h 0 h 0 h	8 Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h	\$0.00	\$1,218.80	\$1,218.80
6.12.4	ID 11 39 40 56 58 59 64 74	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov	Units 50% 200% 200% 100% 50% 50% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 4 h 8 h 4 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
5.12.4	ID 11 39 40 56 58 59 64	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham	Units 50% 200% 200% 100% 50% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	8 Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
5.12.4	ID 11 39 40 56 58 59 64 74 94 Notes	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis	Units 50% 200% 200% 100% 50% 50% 100% 50%	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 4 h 8 h 4 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 111 39 40 56 58 59 64 74 94 Notes WBS De	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis	Units 50% 200% 200% 100% 50% 50% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 111 39 40 56 58 59 64 74 94 Notes WBS De	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis	Units 50% 200% 200% 100% 50% 50% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	1D 11 39 40 56 58 59 64 74 94 Notes WBS De This tas	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k installs L0 installat	Units 50% 200% 200% 100% 50% 50% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	1D 11 39 40 56 58 59 64 74 94 WBS De This tas	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k installs L0 installat	Units 50% 200% 200% 100% 50% 50% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 11 39 40 56 58 59 64 74 94 Notes WBS De This tas	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- ik installs L0 installat	Units 50% 200% 200% 100% 50% 50% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 11 39 40 56 58 59 64 74 94 Notes WBS Do This tas M&S BO NA Labor B	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- k installs L0 installat DE- OE-	Units 50% 200% 200% 100% 50% 50% 100% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 11 39 40 56 58 59 64 74 94 Notes WBS Do This tas M&S BO NA Labor B	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- ik installs L0 installat	Units 50% 200% 200% 100% 50% 50% 100% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80	\$1,218.80
	ID 11 39 40 56 58 59 64 74 94 Notes WBS Do This tas M&S BO NA Labor B	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis effinition- k installs L0 installat DE- OE-	Units 50% 200% 200% 100% 50% 50% 50% 100% 50% tion fixture, r	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov. 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 8 h	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work Ac	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 4 h 8 h	\$0.00	\$1,218.80 \$0.00	\$1,218.80
	1D 11 39 40 56 58 59 64 74 94 WBS De This tas M&S BO NA Labor B Runlla e	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Ollis effinition- ik installs L0 installal DE- OE- experience and cons	Units 50% 200% 200% 100% 50% 50% 50% 100% 50% tion fixture, r	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	ID 11 39 40 56 58 59 64 74 94 Notes WBS De This tas M&S BC NA Labor B Runlla e	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTendF Dave Butter Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Olis effinition- ik installs L0 installat DE- OE- experience and cons Transport L0 to effinition-	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
5.12.5	ID 11 39 40 56 58 59 64 74 94 Notes WBS De This tas M&S BC NA Labor B Runlla e	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- ik installs L0 installar DE- OE- experience and cons Transport L0 to	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	1D 11 39 40 56 58 59 64 74 94 Notes WBS De This tas WBS De WBS De This tas	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Olis efinition- ik installs L0 installat DE- OE- experience and cons Transport L0 to Definition- ik transports L0 to D/	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	ID 11 39 40 56 58 59 64 74 94 Notes WBS De This tas M&S BC NA Labor B Runlla e	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butler Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Olis efinition- ik installs L0 installat DE- OE- experience and cons Transport L0 to Definition- ik transports L0 to D/	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	10 11 39 40 56 58 59 64 74 94 Notes WBS Dt NA Labor B Runlla e Notes WBS Dt NA M&S BC NA	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTendF Dave Butter Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Oils effinition- ik installs L0 installat DE- OE- experience and cons Transport L0 to effinition- ik transports L0 to Di DE-	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% 50% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	10 11 39 40 56 58 59 64 74 Notes WBS Dt This tas M&S BC WBS Dt	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butter Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k installs L0 installar DE- OE- experience and cons Transport L0 to Definition- k transports L0 to DA DE- OE- OE- OE- OE- OE- OE- OE- OE- OE- O	Units 50% 200% 200% 100% 50% 50% 100% 100% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
6.12.5	10 11 39 40 56 58 59 64 74 Notes WBS Dt This tas M&S BC WBS Dt	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTendF Dave Butter Bill Cooper Russ Rucinski Dennis Graham Yourl Orlov Dan Oils effinition- ik installs L0 installat DE- OE- experience and cons Transport L0 to effinition- ik transports L0 to Di DE-	Units 50% 200% 200% 100% 50% 50% 100% 100% 100% 100%	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
3.12.5	10 11 39 40 56 58 59 64 74 Notes WBS Dt This tas M&S BC WBS Dt	Resource Name PhysicistF SeniorMechEngF SeniorMechTechF Dave Butter Bill Cooper Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k installs L0 installar DE- OE- experience and cons Transport L0 to Definition- k transports L0 to DA DE- OE- OE- OE- OE- OE- OE- OE- OE- OE- O	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% tion fixture, r	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 8 h 5 beampipe.	2. Work	Baseline Work	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4h 16h 16h 8h 4h 4h 4h 8h			
3.12.5	10 11 39 40 56 58 59 64 74 Notes WBS Dt This tas M&S BC WBS Dt	Resource Name PhysicistF SeniorMechEngF SeniorMechTengF SeniorMechTengF SeniorMechTengF SeniorMechTengF Russ Rucinski Dennis Graham Youri Orlov Dan Olis efinition- k installs L0 installar DE- OE- experience and cons Transport L0 to Definition- k transports L0 to D/ DE- OE- experience forms the	Units 50% 200% 200% 100% 50% 50% 100% 50% 100% tion fixture, r	Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$0.00 \$759.20 \$459.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work Ov 4 h 16 h 16 h 8 h 4 h 4 h 8 h 4 h 5 beampipe.	2. Work	Baseline Work Ac Oh Oh Oh Oh Oh Oh Oh Oh Oh Fri 9/9/05	0 h 0 h 0 h 0 h 0 h 0 h 0 h	Rem. Work 4 h 16 h 16 h 4 h 4 h 4 h 8 h 8 h 8 h 8 h	\$0.00	\$0.00	\$0.00

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M&S BOE-NA

Finish M&S EQ M&S Labor WBS Name Start FNAL Labor **Total Cost** "Mount Survey Instrument in S Gap" continued Notes Labor BOE-Runlla experience (2004 shutdown) forms the basis of estimate. 1.5.6.12.7 Insert L0 in NEC Beampipe, Load Be Beampipel behind it Fri 11/4/05 Fri 11/4/05 \$0.00 \$0.00 \$1,218.80 \$1,218.80 Resource Name Cost Baseline Cost Act. Cost Ovt. Work Rem. Work Units Rem. Cost Work Baseline Work Act. Work PhysicistF \$0.00 4 h SeniorMechEngF \$759.20 \$459.60 39 200% \$0.00 \$0.00 \$759.20 16 h 0 h 0 h 0 h 16 h 40 SeniorMechTechF 200% \$0.00 \$0.00 \$459.60 16 h 0 h 0 h 0 h 16 h 58 74 50% \$0.00 \$0.00 \$0.00 4 h 0 h Bill Cooper \$0.00 0 h 0 h 4 h Youri Orlov 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h \$0.00 Dan Olis \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 8 h This task transports L0 silicon from SiDet to DAB, moves it into the collision hall and inserts it into the NEC beampipe. The purge in the beampipe is restarted after L0 and the RunlIb Be beampipe are stored there. M&S BOE-Labor BOE-Estimate based on Run2a experience, for which operation is essentially identical; included is effort required to maintain gas purge during move, load detector into transport vehicle at SiDet, and unload detector at DAB, all the while maintaining specified low shock loadings and accelerations. 1.5.6.12.8 \$0.00 \$0.00 Open EFN & NEC, Install L0 Installation Fixtures in N gap Mon 11/7/05 Tue 11/8/05 \$3,356.80 \$3,356.80 ID Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 39 PhysicistF SeniorMechEnaF 100% 200% \$0.00 \$1.518.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$1.518.40 16 h 32 h 0 h 0 h 0 h 0 h 0 h 0 h 16 h 32 h 40 \$1,838.40 64 h SeniorMechTechF 400% \$1,838.40 \$0.00 \$0.00 0 h 0 h 0 h 64 h 49 56 32 h 0 h GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 0 h 0 h 32 h Dave Butler 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 58 Bill Cooper 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 59 64 \$0.00 \$0.00 16 h 16 h Russ Rucinski 100% \$0.00 \$0.00 0 h 0 h 0 h 0 h 16 h 100% 0 h Dennis Graham \$0.00 \$0.00 0 h 16 h 74 Youri Orlov 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h \$0.00 Dan Olis \$0.00 \$0.00 \$0.00 0 h This task removes the scaffolding downstream of EFN, opens EFN and NEC, installs the gap access hardware in the N gap, and installs the L0 installation table, rails, and level from CC in the N gap. M&S BOE-NA Labor BOE-Runlla experience manipulating the EC's and EF's, and consideration of handling fixtures in the gap. 1.5.6.13 L0 Loaded in ECN Beampipe Tue 11/8/05 Tue 11/8/05 \$0.00 \$0.00 \$0.00 \$0.00 Notes WBS Definition-Milestone-L0 Loaded in ECN beampipe. 1.5.6.14 \$4.875.20 **Prepare Gaps for L0 Insertion** Wed 11/9/05 Tue 11/15/05 \$0.00 \$0.00 \$4,875.20 WBS Definition-This summary prepares gaps for final insertion of L0 into Runlla SMT. 1.5.6.14.1 Wed 11/9/05 Wed 11/9/05 \$0.00 Align N Rails with Brunson in S Gap \$0.00 \$989.00 \$989.00 Resource Name Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work Units 11 **PhysicistF** 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0h0 h 8 h 39 SeniorMechEngE 200% \$759.20 \$0.00 \$0.00 \$759.20 16 h Ωh Ωh Ωh 16 h 40 SeniorMechTechF 100% \$229.80 \$0.00 \$0.00 \$229.80 8 h 0 h 0 h 0 h 8 h 50 58 200% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h GanS Bill Cooper \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 74 Youri Orlov 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h 93 Mike Roman 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h This task positions the Brunson in the S gap and aligns the installation rails in the N gap.

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M&S BOE-

WBS Finish M&S EQ M&S Labor **FNAL Labor** Name Start **Total Cost**

son in S Gap" continued

Notes

Labor BOE-

Runlla experience with use of Brunson in gaps during Fall 2004 shutdown...

1.5.6.14.2 Thu 11/10/05 \$0.00 \$0.00 \$989.00 \$989.00 Align S Rails with Brunson in N Gap Thu 11/10/05 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work PhysicistF \$0.00 39 40 49 SeniorMechEngF \$759.20 \$0.00 \$229.80 0 h 0 h SeniorMechTechF 100% \$229.80 \$0.00 8 h 0 h 0 h 8 h \$0.00 GanN 200% \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h 58 74 Bill Cooper 100% \$0.00 \$0.00 \$0.00 0 h 0 h \$0.00 8 h 0 h 8 h Youri Orlov \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 8 h Mike Roman 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 8 h

Notes WBS Definition-

This task positions the Brunson in the N gap and aligns the installation rails in the S gap.

M&S BOE-

Labor BOE-

Runlla experience with use of Brunson in gaps during Fall 2004 shutdown...

1.5.6.14.3 Install Long L0 Installation Tool on S rails Fri 11/11/05 Fri 11/11/05 \$0.00 \$0.00 \$1,218.80 \$1,218.80 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 \$0.00 \$0.00 \$0.00 0 h PhysicistF 50% \$0.00 4 h 0 h 0 h 4 h 39 40 49 SeniorMechEngF 200% \$0.00 \$0.00 16 h \$759.20 \$759.20 16 h 0 h 0 h 0 h SeniorMechTechF 200% \$459.60 \$0.00 \$0.00 \$459.60 16 h 0 h 0 h 0 h 16 h GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 50 56 58 59 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h Dave Butler 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h Bill Cooper 50% 50% \$0.00 \$0.00 \$0.00 \$0.00 4 h 0 h 0 h 0 h 4 h Russ Rucinski \$0.00 \$0.00 4 h \$0.00 \$0.00 4 h 0 h 0 h 0 h Dennis Graham 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 8 h 74 Youri Orlov 100% \$0.00 \$0.00 \$0.00 \$0.00 8 h 0 h 0 h 0 h 8 h 93 Mike Roman \$0.00 \$0.00 \$0.00 \$0.00 0 h 0 h 8 h

Notes
WBS Definition-

This task moves L0 long installation tool from SEC beampipe onto rails in S gap (reestablishes purge in ECS beampipe), checks motion of tool with weight added which simulates L0.

M&S BOE-

NA

Labor BOE-

Runlla experience with beampipe mounts, plus consideration of moving long tool from ECS beampipe.

1.5.6.14.4		Install L0 moun	ts on SMT	-			N	Mon 11/	14/05	Tue 11/15/	05	\$0.00	\$0.00	\$1,678.40	\$1,678.40
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	39	SeniorMechEngF	100%	\$759.20	\$0.00	\$0.00	\$759.20	16 h	0 h	0 h	0 h	16 h			
	40	SeniorMechTechF	200%	\$919.20	\$0.00	\$0.00	\$919.20	32 h	0 h	0 h	0 h	32 h			
	49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	0 h	32 h			
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	0 h	32 h			
	56	Dave Butler	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	58	Bill Cooper	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	94	Dan Olis	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			

This task installs and glues the L0 mounts on the existing SMT bulkheads.

M&S BOE-

NA

Labor BOE-

Detailed consideration of operations involved plus Runlla experience forms the basis of estimate.

New Note	VBS		Name						Start		Finish	N	1&S EQ	M&S Labor	FNAL Labor	Total Cost	
No. Description Process Proc	5.6.15		Gaps ready fo	r L0 Inser	rtion			To	ue 11/15/05	•	Tue 11/15/05		\$0.00	\$0.00	\$0.00	\$0.00	
Section		Notes WRS D	Aefinition-														
Albert A		Milesto	ne- L0 installed and o	connected to	readout syste	em.											
No. St. Prints	5.6.16		Insert L0 in SN	ΛΤ				W	ed 11/16/05	;	Fri 11/18/05		\$0.00	\$0.00	\$4,875.20	\$4,875.20	
This surmany table initials Lib in the Public Suff and stores once the description in CSCs. Supplicity Full Junification Card Mounts Full Junification Card Mou		Notes WRS D	Aefinition-														
10				.0 in the Run	IIa SMT and	stores new Be be	ampipe in EC	S.									
1	5.6.16.1				*								*	\$0.00	\$3,576.40	\$3,576.40	
Secretary Secr														_			
Section Sect		39	SeniorMechEngF	350%	\$2,657.20	\$0.00	\$0.00	\$2,657.20	56 h	0 h	0 h	0 h	56 h				
Section Control Cont		40											32 h				
Section 1965 20.00 20.		49 50	Gapiv										32 n				
The control of the		58	Bill Cooper	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h		0 h	0 h	16 h				
Absolute Comparison Compa		59	Russ Rucinski							0 h							
Absorbed 100% 100		74	Youri Orlov	100%		\$0.00	\$0.00	\$0.00	16 h			0 h	16 h				
MAS BOE- Move Long tool into ECS, remove LD installation Fotures Fri 11/18/05 Fri 11/18/05 So.00 \$1,298.80 \$1,29		93															
Wiss Definition		94	Dan Oils	100%	\$0.00	\$0.00	\$0.00	\$0.00	1011	011	011	011	1011				
MAS 80C - Delated consideration of operations involved, plus experience with Runtile silicon installation forms the basis of estimate. 5.6.1.6.2 Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Fri 11/18/05 Society Removers the basis of estimate. 5.6.1.8.1 Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Fri 11/18/05 Removers from Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Removers from Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Removers from Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Removers from Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Removers from Move Long tool into ECS, remove L0 Installation Fixtures Removers from Move Long tool into ECS, remove L0 Installation Fixtures Removers from Move Long tool into ECS, remove L0 Installation Fixtures Removers from Move Long tool into ECS, remove L0 Installation L0 Into ECS, remove L0 Installation L0 Into ECS Beamppe, removers installation fixtures, including short installation tool, from gaps. MAS BOE- NA Labor SOE Consideration of steps involved forms the basis of estimate for effort. Fri 11/18/05 Fri 11/18/05 \$0.00 \$																	
Master Section Master		WBS D	letinition-	tion reactor	lichec nuras :	n NEC boomsing	inetalle hall -	nount rings on a	ande of LO non	eitione LO	to correct azimuth 4i-	ahtane hall	& cone mounts	It also aluge into	place the junction card ~	nounte	
NA Labor BOE: Detailed consideration of operations involved, plus experience with Runlis allicon installation forms the basis of estimate.		rnis tas	sk draws LU into posit	uon, reestab	ıısnes purge ı	ii iv⊨∪ beampipe	, mstans ball r	nount rings on e	ends of LU, pos	sidons L0	to correct azimuth, tig	untens ball	α cone mounts.	π also glues into p	place the junction card m	iourits.	
NA Labor BOE: Detailed consideration of operations involved, plus experience with Runlis allicon installation forms the basis of estimate.		M&S P	OF-														
Labor BOE: Detailed consideration of operations involved, plus experience with Runils allicon installation forms the basis of estimate.			OL-														
Detailed consideration of operations involved, plus experience with Furnita allicon installation forms the basis of estimate.		. •• •															
5.6.16.2 Move Long tool into ECS, remove L0 Installation Fixtures Fri 11/18/05 Fri 11/18/05 S0.00 \$0.00 \$1,298.80		Labor E	BOE-														
10 Resource Name Units Cost Resoling Cost Act Cost Rem Cost Work Ort Work Baseline Work Act Work Rem Work 1 1 1 1 1 1 1 1 1		Detailed	d consideration of op-	erations invo	olved, plus ex	perience with Rur	Illa silicon ins	tallation forms t	he basis of esti	imate.							
10 Resource Name Units Cost Resoling Cost Act Cost Rem Cost Work Ort Work Baseline Work Act Work Rem Work 1 1 1 1 1 1 1 1 1																	
10 Resource Name Units Cost Resoling Cost Act Cost Rem. Cost Work Out Work Baseline Work Act Work Rem. Work Principles	5.6.16.2		Move Long tool	I into ECS	, remove L	0 Installation I	ixtures		Fri 11/18/05	;	Fri 11/18/05		\$0.00	\$0.00	\$1,298.80	\$1,298.80	
11 Physical 100% \$0.00 \$0.00 \$0.00 \$0.00 \$37.86 \$0.00 \$3.		ID			*							et. Work	* * * * * *	*****	* /	* /	
39 SeriorAccelEngle 100% \$378.50 \$0.00 \$0.00 \$378.50 \$1.00 \$																	
40 SeriorMechTedPF 400% \$8192.0 \$0.0		39	SeniorMechEngF	100%	\$379.60	\$0.00	\$0.00	\$379.60	8 h	0 h	0 h						
Solid Soli		40	SeniorMechTechF	400%	\$919.20	\$0.00	\$0.00	\$919.20	32 h	0 h	0 h	0 h	32 h				
Set Bill Cooper 100% \$0.00 \$		49	GapN		\$0.00		\$0.00	\$0.00									
74 Your Orlory 100% \$0.00 \$0		50	GapS														
74 Your Orlory 100% \$0.00 \$0		58															
MaS BOE- NA		74					\$0.00										
WBS Definition- This task moves long L0 installation tool into ECS beampipe, removes installation fixtures, including short installation tool, from gaps.																	
This task moves long L0 installation tool into ECS beampipe, removes installation fixtures, including short installation tool, from gaps. M&S BOE- NA Labor BOE- Consideration of steps involved forms the basis of estimate for effort. 5.6.17 L0 Mechanical Installation Complete WBS Definition- Milestone- Be beampipe installed in L0. 5.6.18 Install Be Beampipe, Junction Cards WBS Definition- This summary task installs the new Be beampipe. 5.6.18. Install Be Beampipe into L0 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 Physicist 100% \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$0.00 \$																	
M&S BOE- NA Labor BOE- Consideration of steps involved forms the basis of estimate for effort. 5.6.17 LO Mechanical Installation Complete Fri 11/18/05 Fri 11/18/05 Fri 11/18/05 Fri 11/18/05 So.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$7,312.80 \$7,312.80 \$7,312.80 \$7,312.80 \$1,0018 WBS Definition- This summary task installs the new Be beampipe. 1. Install Be Beampipe into LO Install Beampipe into LO Insta				tallation tool	into ECS bea	mnine removes i	nstallation fixt	ures including	short installation	on tool fro	om dans						
NA			ŭ	andion too.	200 500			aroo, molaamig	onort motamatic	o too.,	om gapo.						
Labor BOE- Consideration of steps involved forms the basis of estimate for effort. 5.6.17 LO Mechanical Installation Complete WBS Definition- Milestone- Be beampipe, Junction Cards Notes WBS Definition- This summary task installs the new Be beampipe. Mon 11/21/05 Mon 11/21/05 Wed 11/30/05 Wed 11/30/05 Notes WBS Definition- This summary task installs the new Be beampipe. 5.6.18.1 Install Be Beampipe into LO Mon 11/21/05 Tue 11/22/05 Tue 11/22/05 Tue 11/22/05 Tue 11/22/05 So.00 \$0.00 \$2,437.60 \$2,437.60 \$2,437.60 \$2,437.60 \$2,437.60 \$2,437.60 \$3 SeniorMechEngf 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$2h 0h 0h 0h 0h 2h 16h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$2h 0h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 \$2h 0h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 49 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 50 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 50 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 50 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 50 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 32h 50 SeniorMechTepf 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2h 0h 0h 0h 0h 16h 0h 0h 0h 0h 0h 16h 0h 0h 0h 0h 0h 16h 0h 0h 0h 0h 16h 0h 0h 0h 0h 0h 0h 16h 0h		M&S B	OE-														
Consideration of steps involved forms the basis of estimate for effort.		NA															
Consideration of steps involved forms the basis of estimate for effort.			205														
Second S				ed forms the	e hasis of est	imate for effort											
Notes WBS Definition- Milestone- Be beampipe installed in L0.		20113101											***	Ac		A	
WBS Definition- Be beampipe installed in L0. State Beampipe Junction Cards Mon 11/21/05 Wed 11/30/05 \$0.00 \$7,312.80 \$7,312.80	.5.6.17			Installati	on Compl	ete		ı	-ri 11/18/05	•	Fri 11/18/05		\$0.00	\$0.00	\$0.00	\$0.00	
Second Research Process Mon 11/21/05 Wed 11/30/05 \$0.00 \$7,312.80 \$7,312.80																	
5.6.18 Install Be Beampipe, Junction Cards Notes WBS Definition- This summary task installs the new Be beampipe.				iollod i- ! C													
Notes		ivillesto	ne- Be beampipe inst	tailed in L0.													
Notes																	
New Control of the New Best	.5.6.18		Install Be Bear	mpipe, Ju	ınction Ca	rds		Mo	on 11/21/05	i	Wed 11/30/05		\$0.00	\$0.00	\$7,312.80	\$7,312.80	
This summary task installs the new Be beampipe. Install Be Beampipe into L0		Notes															
5.6.18.1 Install Be Beampipe into L0																	
ID Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 PhysicistF 100% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$1.518.40 \$0.00 \$0.00 \$1.518.40 \$0.00 \$0.00 \$1.518.40 \$0.00 \$0.00 \$1.518.40 \$0.00 \$0.00 \$1.518.40 \$0.00 \$0.00 \$1.518.40 \$0.00 <td></td> <td>This su</td> <td>mmary task installs the</td> <td>ne new Be b</td> <td>eampipe.</td> <td></td>		This su	mmary task installs the	ne new Be b	eampipe.												
ID Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work																	
11 PhysicistF 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 39 SeniorMechEngF 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 32 h 0 h 0 h 0 h 0 h 32 h 40 SeniorMechTechF 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 32 h 0 h 0 h 0 h 0 h 32 h 49 GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2 h 0 h 0 h 0 h 0 h 32 h 50 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 \$2 h 0 h 0 h 0 h 0 h 32 h 58 Bill Cooper 100% \$0.00<	.5.6.18.1		Install Be Beam	npipe into	LO			M	on 11/21/05	5	Tue 11/22/05		\$0.00	\$0.00	\$2,437.60	\$2,437.60	
11 PhysicistF 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 0 h 16 h 39 SeniorMechEngF 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 32 h 0 h 0 h 0 h 0 h 32 h 40 SeniorMechTechF 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 32 h 0 h 0 h 0 h 0 h 32 h 49 GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2 h 0 h 0 h 0 h 0 h 32 h 50 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 \$2 h 0 h 0 h 0 h 0 h 32 h 58 Bill Cooper 100% \$0.00<		ID				Reseline Cost	Act Cost					Act Work	* * * * *		. ,		
39 SeniorMechEngF 200% \$1,518.40 \$0.00 \$0.00 \$1,518.40 32 h 0 h 0 h 0 h 32 h 40 SeniorMechTechF 200% \$919.20 \$0.00 \$0.00 \$919.20 32 h 0 h 0 h 0 h 32 h 40 GapN 200% \$0.00 \$0.0														_			
40 SeniorMechTechF 200% \$19.20 \$0.00 \$0.00 \$919.20 32 h 0 h 0 h 0 h 32 h 49 GapN 200% \$0.00 \$0.0																	
49 GapN 200% \$0.00 \$0.00 \$0.00 \$0.00 32 h 0 h 0 h 32 h 50 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 32 h 0 h 0 h 0 h 32 h 58 Bill Cooper 100% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h 59 Russ Rucinski 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h		40		200%	\$919.20	\$0.00	\$0.00	\$919.20	32 h		0 h	0 h	32 h				
50 GapS 200% \$0.00 \$0.00 \$0.00 \$0.00 32 h 0 h 0 h 32 h 58 Bill Cooper 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h 59 Russ Rucinski 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h		49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h			0 h	32 h				
58 Bill Cooper 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h 59 Russ Rucinski 100% \$0.00 \$0.00 \$0.00 \$0.00 16 h 0 h 0 h 16 h		50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	0 h	32 h				
		58	Bill Cooper	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				
רא זיטווי 100% אָט.טט אָט.טט אָט.טט אָט.טט איז פֿאר 16 m ט מור 16 m ט איז																	
		74	Youri Orlov	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				

Total Cost WBS Start Finish M&S EQ M&S Labor **FNAL Labor** Name

WBS Definition-

This task draws the new Be beampipe from the ECS beampipe and locates it in L0. Spool pieces are connected to its ends and capped, and it is evacuated with portable vacuum pump. After leak checking, it is backfilled with GN2.

M&S BOE-

Labor BOE-

Runlla experience forms the basis of estimate for effort.

1.5.6.18.2		Connect and Le	eak Test L	.0 Cooling	g Manifold & C	onnections	١	Ved 11/2	23/05	Wed 11/23/	05	\$0.00	\$0.00	\$1,218.80	\$1,218.80
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
•	11	PhysicistF	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	39	SeniorMechEngF	200%	\$759.20	\$0.00	\$0.00	\$759.20	16 h	0 h	0 h	0 h	16 h			
	40	SeniorMechTechF	200%	\$459.60	\$0.00	\$0.00	\$459.60	16 h	0 h	0 h	0 h	16 h			
	49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	56	Dave Butler	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	58	Bill Cooper	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	59	Russ Rucinski	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	64	Dennis Graham	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	94	Dan Olis	100%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			

Notes

WBS Definition-

This task connects L0 cooling manifold and leak tests all connections

M&S BOE-

Labor BOE-

Runlla experience forms the basis of estimate for effort.

1.5.6.18.3		Install Junction	Cards, Te	empMon Ca	ards, Connect	L0	M	on 11/28	3/05	Wed 11/30/0	5	\$0.00	\$0.00	\$3,656.40	\$3,656.40
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
•	11	PhysicistF	150%	\$0.00	\$0.00	\$0.00	\$0.00	36 h	0 h	0 h	0 h	36 h			
	39	SeniorMechEngF	200%	\$2,277.60	\$0.00	\$0.00	\$2,277.60	48 h	0 h	0 h	0 h	48 h			
	40	SeniorMechTechF	200%	\$1,378.80	\$0.00	\$0.00	\$1,378.80	48 h	0 h	0 h	0 h	48 h			
	49	GapN	200%	\$0.00	\$0.00	\$0.00	\$0.00	48 h	0 h	0 h	0 h	48 h			
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	48 h	0 h	0 h	0 h	48 h			
	55	Linda Bagby	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	56	Dave Butler	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	58	Bill Cooper	50%	\$0.00	\$0.00	\$0.00	\$0.00	12 h	0 h	0 h	0 h	12 h			
	59	Russ Rucinski	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	64	Dennis Graham	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	74	Youri Orlov	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			

Notes WBS Definition-

This task installs the 12 2-channel junction cards per side. The twisted pair cables on the junction cards connect to the adapter cards on the horseshoes. Six inner junction cards are installed all the way to the adapter cards on the horseshoes, and tested (junction card + twisted pair cable + adapter card), before proceeding with the outer ring of 6 junction cards. The digital cables from L0 are connected to the junction cards as the work proceeds. The 80-conductor cables and clock cables are reconnected to the adapter cards also.

Connect rad mon and Temp mon cables.

M&S BOE-

Labor BOE-

Runlla experience forms the basis of estimate for effort. There are 12 2-channel junction cards per side, and four can be installed per day per person. Dave Butler and Denny Graham are the preferred persons, with Linda Bagby; testing is done by Fermilab

1.5.6.19	Runllb Be Beampipe Installed, Junction cards Installed	Wed 11/30/05	Wed 11/30/05	\$0.00	\$0.00	\$0.00	\$0.00
	Notes						
	WBS Definition-						

Milestone- new Be beampipe installed in L0 and junction cards installed and connected to adapter cards on horseshoes.

1.5.6.20		Install Inner H-	disks					Thu 12/	I /05	Mon 12/5/0	5	\$0.00	\$0.00	\$3,656.40	\$3,656.40	
1.5.6.20.1		Install and Cabl	e H-disks	, Connect (Cooling Lines			Thu 12/	1/05	Mon 12/5/0)5	\$0.00	\$0.00	\$3,656.40	\$3,656.40	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
•	11	PhysicistF	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h				
	39	SeniorMechEngF	200%	\$2,277.60	\$0.00	\$0.00	\$2,277.60	48 h	0 h	0 h	0 h	48 h				
	40	SeniorMechTechF	200%	\$1,378.80	\$0.00	\$0.00	\$1,378.80	48 h	0 h	0 h	0 h	48 h				
	49	GapN	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h				
	50	GapS	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h				
	55	Linda Bagby	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h				

BS		Name						S	tart	Finish	N	I&S EQ	M&S Labor	FNAL Labor	Total Cost
stall and		H-disks, Connec					_								
	ID 56	Resource Name Dave Butler	Units 100%	Cost \$0.00	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$0.00	Work 24 h	Ovt. Work	Baseline Work 0 h	Act. Work	Rem. Work 24 h	_		
	64	Dennis Graham	100%	\$0.00	\$0.00	\$0.00	\$0.00	24 h	0 h	0 h	0 h	24 h			
	94 95	Dan Olis Joe Howell	100% 100%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	24 h 24 h	0 h 0 h	0 h 0 h	0 h 0 h	24 h 24 h			
	Notes		.00,0	φυ.υυ	φ3.00	ψ0.00	φ0.00		311	311	311	2411			
		Definition-													
		sk installs the H-disk ir	nstallation fi	xtures, moun	ts the H-disks, cor	nnects cooling	lines and the	low mass of	ables.						
	M&S B	OE-													
	NA														
	Labor B	BOE-													
		experience installing t	he H-disks	forms the bas	is of estimate.										
5.6.21		H-disks Installe	ed					Mon 12/5	5/05	Mon 12/5/05		\$0.00	\$0.00	\$0.00	\$0.00
5.6.22		Connect Outer		105				Tue 12/6		Thu 12/8/05		\$0.00	\$0.00	\$4,166.20	\$4,166.20
,.J.ZZ	Notes	Connect Outer	Seampi					146 12/0	,,,,,	1110 12/0/03		ψ3.00	φυ.υυ	φ+,100.20	ψΨ,100.20
	WBS D	efinition-													
	This su	mmary task closes the	e gaps and	makes up the	outer beampipes										
		01 501 55			T 11 501			T 40'0	V/0.F	T 40/5/5=		# 0.00		#4 F00 03	#4.500.00
5.6.22.1		Close EC's, EF's						Tue 12/6		Tue 12/6/05		\$0.00	\$0.00	\$1,568.60	\$1,568.60
	ID 39	Resource Name SeniorMechEngF	Units 50%	Cost \$189.80	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$189.80	Work 4 h	Ovt. Work 0 h	Baseline Work 0 h	Act. Work	Rem. Work 4 h	_		
	40	SeniorMechTechF	600%	\$1,378.80	\$0.00	\$0.00	\$1,378.80	48 h	0 h	0 h	0 h	48 h			
	49 50	GapN GapS	200% 200%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	16 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	16 h 16 h			
	59	Russ Rucinski	50%	\$0.00	\$0.00	\$0.00	\$0.00	4 h	0 h	0 h	0 h	4 h			
	Notes														
		efinition-							F01		d 4- 11	- 500 '	EEL 1 1111	l baidann fan '	de e eletteres
	M&S BONA	OE-			nd extension spoo			·	ses EC's, rem	oves long L0 installa	alon tool no	11 203, 610565	EFS, extenas snieid	i bridges for use as work	ину ранони.
	M&S BONA	OE- BOE- experience involving r	manipulation		·		asis of estimal	te.		·		·	·	•	
5.6.22.2	M&S BO NA Labor B Runlla	OE- 3OE- experience involving r	manipulation pes	n of EC's and	EF's and scaffold	s, forms the b	asis of estimat	te. Wed 12/7	'/05	Thu 12/8/05		\$0.00	\$0.00	\$2,597.60	\$2,597.60
5.6.22.2	M&S BO NA Labor B Runlla	OE- 3OE- experience involving r Install SNEG pig Resource Name	manipulation pes Units	n of EC's and	EF's and scaffold Baseline Cost	s, forms the b	asis of estimat	Ned 12/7	7/05 Ovt. Work	Thu 12/8/05 Baseline Work	Act. Work	\$0.00 Rem. Work	\$0.00	•	
5.6.22.2	M&S BONA Labor BRunlla	OE- 3OE- experience involving r Install SNEG pip Resource Name SeniorMechTechF SeniorMechTechF	manipulation Des Units 100% 400%	Cost \$759.20 \$1,838.40	EF's and scaffold Baseline Cost \$0.00 \$0.00	Act. Cost \$0.00 \$0.00	asis of estimal	Work 16 h 64 h	7/05 Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h	Act. Work 0 h 0 h	\$0.00 Rem. Work 16 h 64 h	\$0.00	•	
5.6.22.2	M&S BONA Labor E Runlla	OE- 3OE- experience involving r Install SNEG pip Resource Name SeniorMechEngf SeniorMechTechF Russ Rucinski	manipulation Des Units 100%	Cost \$759.20	EF's and scaffold Baseline Cost \$0.00	s, forms the b	asis of estimal	Wed 12/7 Work 16 h	7/05 Ovt. Work 0 h	Thu 12/8/05 Baseline Work 0 h	Act. Work 0 h	\$0.00 Rem. Work	\$0.00	•	
5.6.22.2	M&S BONA Labor B Runlla ID 39 40 59 Notes	OE- BOE- experience involving r Install SNEG pir Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski	manipulation Des Units 100% 400%	Cost \$759.20 \$1,838.40	EF's and scaffold Baseline Cost \$0.00 \$0.00	Act. Cost \$0.00 \$0.00	asis of estimal	Work 16 h 64 h	7/05 Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h	Act. Work 0 h 0 h	\$0.00 Rem. Work 16 h 64 h	\$0.00	•	
5.6.22.2	M&S BONA Labor E Runlla (1) 1D 39 40 59 Notes WBS D This tas	OE- SOE- experience involving r Install SNEG pip Resource Name SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam	manipulation Des Units 100% 400% 100% npipes, insta	Cost \$759.20 \$1,838.40 \$0.00	EF's and scaffold Baseline Cost \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	
5.6.22.2	M&S BONA Labor E Runlla (1) 1D 39 40 59 Notes WBS D This tas	OE- 3OE- experience involving r Install SNEG pir Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition-	manipulation Des Units 100% 400% 100% npipes, insta	Cost \$759.20 \$1,838.40 \$0.00	EF's and scaffold Baseline Cost \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
5.6.22.2	M&S BO NA Labor B Runlla of Section 19 Sect	OE- SOE- experience involving r Install SNEG pip Resource Name SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the	manipulation Des Units 100% 400% 100% npipes, insta	Cost \$759.20 \$1,838.40 \$0.00	EF's and scaffold Baseline Cost \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
5.6.22.2	M&S BONA Labor B Runlla (1) 1D 39 40 59 Notes WBS D This tas Bags (w	OE- SOE- experience involving r Install SNEG pip Resource Name SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the	manipulation Des Units 100% 400% 100% npipes, insta	Cost \$759.20 \$1,838.40 \$0.00	EF's and scaffold Baseline Cost \$0.00 \$0.00 \$0.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
5.6.22.2	M&S BONA Labor E Runlla (1) 1D 39 40 59 WBS D This tas Bags (v M&S BONA Labor E	OE- 30E- experience involving r Install SNEG pip Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC bearr with remote supply) the OE- 30E-	manipulation DOS Units 100% 400% 100% npipes, instee quad cross	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
5.6.22.2	M&S BONA Labor E Runlla (1) 1D 39 40 59 WBS D This tas Bags (v M&S BONA Labor E	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the	manipulation DOS Units 100% 400% 100% npipes, instee quad cross	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work 0 h 0 h	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work O h O h O h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
	M&S BONA Labor E Runlla (1) 1D 39 40 59 WBS D This tas Bags (v M&S BONA Labor E	OE- 3OE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- 3OE- ence during 2004 shute	manipulation DES Units 100% 400% 100% npipes, instee quad cross down forms	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h cross. Mean	Ovt. Work Oh Oh Oh	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 0 th	Act. Work 0 h 0 h 0 h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00 — ct to quad. Bags (w	\$2,597.60	\$2,597.60 NEG-EC beampipe joints for leak
	M&S BONA Labor E Runlla JD 39 40 59 Notes WBS D This tas Bags (w M&S BONA Labor E Experie	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- ance during 2004 shute Outer Beampip	manipulation DES Units 100% 400% 100% npipes, instee quad cross down forms	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h	Ovt. Work Oh Oh Oh	Thu 12/8/05 Baseline Work 0 h 0 h 0 h	Act. Work 0 h 0 h 0 h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00	\$2,597.60	\$2,597.60
	M&S BO NA Labor E Runlla 39 40 59 Notes WBS D This tas Bags (v M&S BO NA Labor E Experie	OE- SOE- experience involving resource Name SeniorMechTechF Russ Rucinski Definition- sk opens the EC beamwith remote supply) the OE- SOE- ence during 2004 shute	manipulation DES Units 100% 400% 100% npipes, instee quad cross down forms	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h cross. Mean	Ovt. Work Oh Oh Oh	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 0 th	Act. Work 0 h 0 h 0 h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00 — ct to quad. Bags (w	\$2,597.60	\$2,597.60 NEG-EC beampipe joints for leak
	M&S BONA Labor B Runlla (10) 39 40 59 Notes WBS D This tas Bags (wms Bags (wms Bona) Labor B Experie	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- ance during 2004 shute Outer Beampip	manipulation Des Units 100% 400% 100% npipes, instate e quad cros	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 so.00 so.00 so.00 so.00	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h cross. Mean	Ovt. Work Oh Oh Oh	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 0 th	Act. Work 0 h 0 h 0 h	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00 — ct to quad. Bags (w	\$2,597.60	\$2,597.60 NEG-EC beampipe joints for leak
5.6.23	M&S BONA Labor B Runlla (10) 39 40 59 Notes WBS D This tas Bags (wm &S Bona) NA Labor B Experie	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- BOE- BOE- BOE- BOE- BOE- BOE-	manipulation Des Units 100% 400% 100% 100% npipes, instee e quad cross down forms connected.	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$c. cost	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Word 12/7 Work 16 h 64 h 16 h rross. Meas	Ovt. Work Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 10 h Thu 12/8/05	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h nge with respe	\$0.00 — ct to quad. Bags (w	\$2,597.60 ith remote supply) the Si	\$2,597.60 NEG-EC beampipe joints for leak
5.6.22.2 5.6.23	M&S BONA Labor E Runlla 39 40 59 59 59 59 Motes WBS D This tas Bags (w M&S BONA Labor E Experie	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- ence during 2004 shute Outer Beampip Definition- ne- Outer beampipes Open Gaps, Ma	manipulation Des Units 100% 400% 100% 100% npipes, instee e quad cross down forms connected.	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$c. cost	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Wed 12/7 Work 16 h 64 h 16 h cross. Mean	Ovt. Work Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 0 th	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h	\$0.00 — ct to quad. Bags (w	\$2,597.60	\$2,597.60 NEG-EC beampipe joints for leak
5.6.23	M&S BONA Labor E Runlla 1 1D 39 40 59 Notes WBS D This tas Bags (V M&S BONA Labor E Experie	Install SNEG pip Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- ance during 2004 shute Outer Beampip Definition- ne- Outer beampipes Open Gaps, Ma	manipulation Des Units 100% 400% 100% 100% npipes, instee e quad cross down forms connected.	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$c. cost	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Word 12/7 Work 16 h 64 h 16 h rross. Meas	Ovt. Work Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 10 h Thu 12/8/05	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h nge with respe	\$0.00 — ct to quad. Bags (w	\$2,597.60 ith remote supply) the Si	\$2,597.60 NEG-EC beampipe joints for leak
i.6.23	M&S BONA Labor B Runlla de Servicia de Se	OE- BOE- experience involving resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- BOE- ence during 2004 shute Outer Beampip Definition- ne- Outer beampipes Open Gaps, Ma	manipulation Des Units 100% 400% 100% 100% connected.	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips s for later lea	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.k checking.	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Word 12/7 Work 16 h 64 h 16 h rross. Meas	Ovt. Work Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 10 h Thu 12/8/05	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h nge with respe	\$0.00 — ct to quad. Bags (w	\$2,597.60 ith remote supply) the Si	\$2,597.60 NEG-EC beampipe joints for leak
.6.23	M&S BONA Labor B Runlla de Servicia de Se	Install SNEG pip Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC beam with remote supply) the OE- Cuter Beampip Definition- une- Outer beampips Open Gaps, Ma Definition- unmary task opens the	manipulation Des Units 100% 400% 100% 100% npipes, instee e quad cross down forms connected. ake Up In e gaps make	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips for later lea the basis of c	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 solution in the context of t	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Word 12/7 Work 16 h 64 h 16 h rross. Meas	Ovt. Work Oh Oh Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work 0 h 0 h 0 h 10 h Thu 12/8/05	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h nge with respe	\$0.00 — ct to quad. Bags (w	\$2,597.60 ith remote supply) the Si	\$2,597.60 NEG-EC beampipe joints for leak
.6.23	M&S BONA Labor B Runlla de Servicia de Se	Install SNEG pip Resource Name SeniorMechEngF SeniorMechTechF Russ Rucinski Definition- sk opens the EC bearn with remote supply) the OE- BOE- ence during 2004 shute Outer Beampip Definition- nne- Outer beampipes Open Gaps, Ma	manipulation Des Units 100% 400% 100% 100% npipes, instee e quad cross down forms connected. ake Up In e gaps make	Cost \$759.20 \$1,838.40 \$0.00 alls SNEG pips for later lea the basis of c	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 solution in the context of t	Act. Cost \$0.00 \$0.00 \$0.00	Rem. Cost \$759.20 \$1,838.40 \$0.00	Word 12/7 Work 16 h 64 h 16 h ross. Meas	Ovt. Work Oh Oh Oh Oh Oh Oh Sures and adj	Thu 12/8/05 Baseline Work Oh Oh Oh Thu 12/8/05	Act. Work 0 h 0 h 0 h eampipe fla	\$0.00 Rem. Work 16 h 64 h 16 h 94 h 16 h 95 h 95 h 95 h 96 h 96 h 97 h 98	\$0.00 — ct to quad. Bags (w \$0.00	\$2,597.60 \$th remote supply) the Si \$0.00 \$6,224.20	\$2,597.60 NEG-EC beampipe joints for leak \$0.00 \$6,224.20

		Name							Start	Finish	ı	M&S EQ	M&S Labor	FNAL Labor	Total Cost
pen EC's	s, Insta	all gap access har	rdware" co	ontinued											
	ID 49	Resource Name GapN	Units 200%	Cost \$0.00	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$0.00	Work) 16 h	Ovt. Work 0 h	Baseline Work 0 h	Act. Work 0 h	Rem. Work 16 h	_		
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00) 16 h	0 h	0 h	0 h	16 h			
	59	Russ Rucinski	50%	\$0.00	\$0.00	\$0.00	\$0.00) 4 h	0 h	0 h	0 h	4 h			
	Notes WRS D	efinition-													
		sk retracts the muon b	bridges, ope	ns the EF's, t	the EC's, installs	the gap acce	ss hardware,								
	M&S B	OF-													
	NA	OL .													
	Labor B	BOF-													
		experience manipulat	tion EC's and	d scaffolding	forms the basis	of estimate fo	r effort.								
5.24.2		Weld EC bellov	ws, Make	spool/EC j	oint, Leakche	eck		Mon 12/1	2/05	Tue 12/13/05		\$0.00	\$0.00	\$1,908.20	\$1,908.20
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work		ct. Work	Rem. Work			
	11 39	PhysicistF SeniorMechEngF	50% 100%	\$0.00 \$759.20	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$759.20	8 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	8 h 16 h			
	40	SeniorMechTechF	200%	\$919.20	\$0.00	\$0.00	\$919.20	32 h	0 h	0 h	0 h	32 h			
	42 49	WelderF GapN	50% 200%	\$229.80 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$229.80 \$0.00	8 h 32 h	0 h 0 h	0 h 0 h	0 h 0 h	8 h 32 h			
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	0 h	32 h			
	58	Bill Cooper	50%	\$0.00	\$0.00	\$0.00	\$0.00	8 h	0 h	0 h	0 h	8 h			
	59	Russ Rucinski	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h			
	Notes	efinition-													
			ons/flanges t	to the EC bea	ampipes, makes	up connection	ns betwee new	flanges an	d extensions b	ellows, removes the	supports of	the extensions.	evacuates D0 bean	npipe via remote valve a	t S quad, helium-leak checks D0 bear
		detected at joint in ou								,		,			
	M&S B	OE-													
	NA														
	Labor B	OF.													
		nudown experience fo	orms the has	ic of actimate											
				is or estimate	e for effort.										
		Install Beampin			e for effort.			Ned 12/1	4/05	Wed 12/14/05		\$0.00	\$0.00	\$1,069,00	\$1,069,00
		Install Beampip	e support	S		Act Cost		Ned 12/1		Wed 12/14/05	ct Work	\$0.00	\$0.00	\$1,069.00	\$1,069.00
	ID	Resource Name	e supports	S Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work		ct. Work	Rem. Work	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40	Resource Name SeniorMechEngF SeniorMechTechF	Units 100% 300%	S Cost \$379.60 \$689.40	Baseline Cost \$0.00 \$0.00	\$0.00 \$0.00	Rem. Cost \$379.60 \$689.40	Work 8 h 24 h	Ovt. Work 0 h 0 h	Baseline Work A	0 h 0 h	Rem. Work 8 h 24 h	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40 49	Resource Name SeniorMechEngF SeniorMechTechF GapN	Units 100% 300% 200%	S Cost \$379.60 \$689.40 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00	Work 8 h 24 h 16 h	Ovt. Work 0 h 0 h 0 h	Baseline Work A	0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40	Resource Name SeniorMechEngF SeniorMechTechF	Units 100% 300%	S Cost \$379.60 \$689.40	Baseline Cost \$0.00 \$0.00	\$0.00 \$0.00	Rem. Cost \$379.60 \$689.40	Work 8 h 24 h	Ovt. Work 0 h 0 h	Baseline Work A	0 h 0 h	Rem. Work 8 h 24 h	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40 49 50	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS	De Supports Units 100% 300% 200% 200%	Cost \$379.60 \$689.40 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40 49 50 59 Notes WBS D	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski	Units 100% 300% 200% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
	ID 39 40 49 50 59 Notes WBS D	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski	Units 100% 300% 200% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
.24.3	ID 39 40 49 50 59 Notes WBS D	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski refinition- sk installs the beampi	Units 100% 300% 200% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
5.24.3	1D 39 40 49 50 59 Notes WBS D This tas	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski refinition- sk installs the beampi	Units 100% 300% 200% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
5.24.3	1D 39 40 49 50 59 Notes WBS D This tas M&S BO NA	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi	Units 100% 300% 200% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	### Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
5.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BO NA	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi	Units 100% 300% 200% 200% 100%	S Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00	\$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work 0 h 0 h 0 h 0 h	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00	\$1,069.00
3.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BO NA	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski effinition- sk installs the beampi OE-	Units 100% 300% 200% 200% 100%	Cost \$379.60 \$589.40 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h	Ovt. Work Oh Oh Oh Oh Oh	Baseline Work A 0 h 0 h 0 h 0 h 0 h	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h	\$0.00	\$1,069.00 \$1,678.40	\$1,069.00 \$1,678.40
5.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BO NA	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- SOE- experience forms the	Units 100% 300% 200% 200% 100%	Cost \$379.60 \$589.40 \$0.00 \$0.00 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 8 h	Ovt. Work	8aseline Work	0 h 0 h 0 h 0 h	Rem. Work 8 h 24 h 16 h 16 h 8 h			
5.24.3	1D 39 40 49 50 59 WBS D This tas M&S BO NA Labor E Runlla	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski effinition- sk installs the beampi OE- OE- experience forms the Install H-disk in Resource Name PhysicistF	Units 100% 300% 200% 200% 100% basis of est sulation & Units Units	Cost \$379.60 \$889.40 \$0.00 \$0.00 \$0.00 \$0.00	Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 8 h	Ovt. Work	Baseline Work	Oh Oh Oh Oh Oh	Rem. Work 8 h 24 h 16 h 16 h 8 h \$ h 8 h Rem. Work 16 h			
3.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BO NA Labor E Runlla ID 11 39	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF	Units 100% 300% 200% 200% 100% basis of est sulation & Units 100% 100%	Cost \$379.60 \$689.40 \$0.00 \$0.	Baseline Cost	\$0.00 \$0.00 \$2.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 8 h Thu 12/1 Work 16 h 16 h	Ovt. Work O h O h O h O h O h O h O h O h O h O	Baseline Work	Oh Oh Oh Oh Oh Oh	Rem. Work 8 h 24 h 16 h 16 h 8 h 8 h 8 h			
5.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BC NA Labor E Runlla ID 11 39 40 49	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski effinition- sk installs the beampi OE- BOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapN	Units 100% 300% 200% 200% 100% basis of est sulation & Units 100% 100% 200% 200% 200% 200%	Cost \$379.60 \$689.40 \$0.00 \$0.	Baseline Cost \$0.00	\$0.00 \$0.00 \$2.00 \$2.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00	Work 8 h 24 h 16 h 16 h 8 h Thu 12/1 Work 16 h 16 h 32 h	Ovt. Work Oh	Baseline Work	oh oh oh oh oh	\$0.00 \$0.00 Rem. Work 16 h 16			
5.24.3	ID 39 40 49 50 59 WBS D This tas M&S BO NA Labor E Runlla ID 11 39 40 49 50	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski effinition- sk installs the beampi OE- 30E- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS GapS	Units 100% 300% 200% 200% 100% ppe supports. basis of est sulation & Units 100% 100% 200% 200% 200% 200% 200% 200%	Cost \$379.60 \$689.40 \$0.00	Baseline Cost \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 So.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.0	Work 8 h 24 h 16 h 16 h 16 h 16 h 3 h Work 16 h 16 h 32 h 32 h	5/05 Ovt. Work 5/05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0	Baseline Work	ct. Work Oh Oh Oh Oh Oh Oh Oh Oh	\$0.00 Rem. Work			
3.24.3	ID 39 40 49 50 59 Notes WBS D This tas M&S BO NA Labor E Runlla 10 11 39 40 49 50 56	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski effinition- sk installs the beampi OE- BOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler	Units 100% 300% 200% 100% 100% 100% 100% 100% 100% 1	Cost \$379.60 \$889.40 \$0.00	Baseline Cost \$0.00 \$0.0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$0.00	Work 8 h 24 h 16 h 16 h 8 h Thu 12/1 Work 16 h 32 h 32 h 32 h 16 h	5/05 Out. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0	Baseline Work	ct. Work Oh Oh Oh Oh Oh Oh Oh	\$0.00 \$0.00 Rem. Work 16 h 16			
5.24.3	## ID 39 40 49 50 50 50 50 50 50 50 5	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- BOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski	Units 100% 300% 200% 200% 100% ipe supports. basis of est Sullation & Units 100% 200% 200% 200% 100% 100% 100% 100%	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$19.20 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 8 h Thu 12/1 Work 16 h 32 h 32 h 32 h 16 h 16 h 16 h	5/05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			
3.24.3	ID 39 40 49 50 50 50 11 11 11 12 12 12 12 1	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- OE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper	Units 100% 300% 200% 200% 100% basis of est Units Units 100% 100% 100% 100% 100% 100% 100% 100	Cost \$379.60 \$689.40 \$0.00	Baseline Cost \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 16 h 16 h 3 h Work 16 h 16 h 32 h 32 h 16 h 16 h	5/05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0	Baseline Work	ct. Work oh oh oh oh oh oh oh oh oh o	\$0.00 Rem. Work \$ h 24 h 16 h 16 h 8 h \$			
5.24.3	ID 39 40 49 49 50 59 Notes WBS D This tas M&S BK NA Labor E Runlla 1 1D 11 10 50 56 58 59 64 Notes	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- OE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham	Units 100% 300% 200% 200% 100% ipe supports. basis of est Sullation & Units 100% 200% 200% 200% 100% 100% 100% 100%	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$19.20 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 8 h Thu 12/1 Work 16 h 32 h 32 h 32 h 16 h 16 h 16 h	5/05 Ovt. Work 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0 h 0	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			
5.24.3	ID 39 40 49 50 59 Motes WBS D This tas M&S BR NA Labor B Runlla 1 11 39 40 49 50 56 56 56 59 64 Motes WBS D WBS D	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- BOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski	Units 100% 100% 100% 100% 100% 100% 100% 100	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 16 h 3 h Work 16 h	5/05 Ovt. Work 5/05 Ovt. Work 0h	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			
5.24.3	ID 39 40 49 49 50 59 M&S B NA NA Labor B Runlla ID 11 39 40 49 49 49 49 50 56 58 59 64 Notes WBS D This tass	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition-sk installs the beampi OE- SOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham	Units 100% 100% 100% 100% 100% 100% 100% 100	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 16 h 3 h Work 16 h	5/05 Ovt. Work 5/05 Ovt. Work 0h	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			
5.24.3	ID 39 40 49 50 59 Motes WBS D This tas M&S BR NA Labor B Runlla 1 11 39 40 49 50 56 56 56 59 64 Motes WBS D WBS D	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition-sk installs the beampi OE- SOE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham	Units 100% 100% 100% 100% 100% 100% 100% 100	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 16 h 3 h Work 16 h	5/05 Ovt. Work 5/05 Ovt. Work 0h	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			
5.24.3	ID 39 40 49 50 59 Notes WBS D This tas NA Labor E Runlla 1 11 39 40 49 50 56 58 59 64 WBS D This tas M&S BK MAS BK BK MAS BK MAS	Resource Name SeniorMechEngF SeniorMechTechF GapN GapS Russ Rucinski efinition- sk installs the beampi OE- OE- experience forms the Install H-disk in Resource Name PhysicistF SeniorMechEngF SeniorMechTechF GapN GapS Dave Butler Bill Cooper Russ Rucinski Dennis Graham effinition- sk installs TLD rad mo OE-	Units 100% 100% 100% 100% 100% 100% 100% 100	Cost \$379.60 \$889.40 \$0.00 \$0.	Baseline Cost \$0.00	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Rem. Cost \$379.60 \$689.40 \$0.00 \$0.00 \$0.00 \$0.00 \$759.20 \$919.20 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00	Work 8 h 24 h 16 h 16 h 16 h 3 h Work 16 h	5/05 Ovt. Work 5/05 Ovt. Work 0h	Baseline Work	ct. Work Oh	\$0.00 Rem. Work 16h 16h 16h 16h 16h 16h 16h 16h			

VBS		Name						Start		Finish	ı		M&S Labor	FNAL Labor	Total Cost	
.5.6.25		Silicon Cold ar	nd Ready	for Techni	cal Commis	sioning		Fri 12/16/05		Fri 12/16/05		\$0.00	\$0.00	\$0.00	\$0.00	
	WBS D	efinition-														
	Milestor	ne- Runllb silicon coo	led and read	dy for technica	l commissionin] .										
5.6.26		Technical com	missionii	ng of Runll	b Silicon			Mon 12/19/05		Tue 12/27/05		\$0.00	\$0.00	\$0.00	\$0.00	
5.6.26.1		Demonstrate Fu	ıll Operab	ility of all C	hannels fror	n Control R	Roc	Mon 12/19/05		Tue 12/27/05		\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units (Cost Base	line Cost Ac	t. Cost Re	em. Cost V	Vork Ovt. Work		seline Work Act. We		em. Work				
	12	PhysicistU	400%	\$0.00	\$0.00	\$0.00	\$0.00	160 h) h	0 h	0 h	160 h				
		efinition-														
	All of th	e electrical connectio	ns for the sil	icon are checl	ked in this task.	Testing prod	ceeds on a qu	adrant-by-quadrar	nt basis.							
	M&S BO	DE-														
	Labor B	OF.														
		experience forms the	basis of the	estimates for	labor. Two shi	fts per day as	sumed.									
5.6.26.2		Demonstrate Fu	ıll Operab	ility of all C	hannels fror	n Control R	Roc	Mon 12/19/05		Tue 12/27/05		\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name						Vork Ovt. Work		seline Work Act. We		em. Work				
	11 Notes	PhysicistF	400%	\$0.00	\$0.00	\$0.00	\$0.00	160 h) h	0 h	0 h	160 h				
	WBS D	efinition-														
		e electrical connectio	ns for the sil	icon are checl	ked in this task.	Testing prod	ceeds on a qu	adrant-by-quadrar	nt basis.							
	M&S BO	DE-														
	Labor B	OF.														
	Run2a	experience forms the	basis of the	estimates for	labor. Two shi	fts per day as	sumed.									
5.6.27		Close Gaps, Ro	estore De	tector to C	peration		١	Wed 12/28/05		Mon 1/9/06		\$0.00	\$0.00	\$10,470.40	\$10,470.40	
5.6.27.1		Close EC's					١	Wed 12/28/05		Wed 12/28/05		\$0.00	\$0.00	\$1,758.40	\$1,758.40	
	ID 39	Resource Name SeniorMechEngF	Units 100%	Cost \$379.60	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$379.60		. Work 0 h	Baseline Work A	Act. Work 0 h	Rem. Work 8 h				
	40 49	SeniorMechTechF GapN	600% 200%	\$1,378.80 \$0.00	\$0.00 \$0.00	\$0.00	\$1,378.80	0 48 h	0 h 0 h	0 h 0 h	0 h 0 h	48 h				
	50 59	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	0 16 h	0 h	0 h	0 h	16 h				
	Notes	Russ Rucinski	100%	\$0.00	\$0.00	\$0.00	\$0.00	0 8 h	0 h	0 h	0 h	8 h				
	WBS D	efinition-			21-											
		sk removes gap acces	ss nardware	and closes Et	J'S.											
	M&S BO NA	OE-														
	Labor B	ROF-														
		experience involving i	manipulation	of EC's forms	the basis of es	timate.										
5.6.27.2		Make Final Lea	k Chook o	f EC/ONEC	Light Install	DI Mio		Thu 12/29/05		Thu 12/29/05		\$0.00	\$0.00	\$689.40	\$689.40	
5.0.21.2	ID	Resource Name	Units		Baseline Cost	Act. Cost	Rem. Cost	Work Ovt. 1	Nork		t. Work	Rem. Work	φυ.υυ	\$669.40	φ009.40	
	40 49	SeniorMechTechF GapN	300% 200%	\$689.40 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$689.40 \$0.00	24 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	24 h 16 h				
	50	GapS	200%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				
	Notes	efinition-														
		sk makes a final leak	check of EC	SNEG joints,	removes leak	hecking bags	s, installs BLM	's.								
	M&S BO	OE-														
	NA															
	Labor B					"										
	Kuniia a	and 2004 shudown ex	·	ms the basis	or estimate for e	шоп.		T 100-		T 105-		00.00	00.00	A 2.2		
5.6.27.3	10	Survey Closed		Cont D-	lina Coat *	t Coot 5	om Coot 'f	Tue 1/3/06		Tue 1/3/06	ork 7	\$0.00	\$0.00	\$0.00	\$0.00	
	ID 54	Resource Name Surveyors		\$0.00 Base	line Cost Ac \$0.00	t. Cost Re \$0.00	em. Cost V \$0.00	Vork Ovt. Work) h	seline Work Act. Wo	ork Re 0 h	em. Work 16 h				
	Notes															
		efinition-														

WBS		Name						Sta	art	Finish	N	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
"Survey Cl		C's" continued														
	Notes This ta:	sk makes VSTAR surv	vey of close	d EC's												
	M&S B	OE-														
	NA															
	Labor E Runlla	3OE- experience forms the	basis of est	imate.												
1.5.6.27.4		Close EF's, mak						Wed 1/4/0		Wed 1/4/06		\$0.00	\$0.00	\$1,758.40	\$1,758.40	
	ID 39	Resource Name SeniorMechEngF	Units 100%	Cost \$379.60	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$379.60	Work 8 h	Ovt. Work	Baseline Work 0 h	Act. Work 0 h	Rem. Work 8 h	_			
	40 59	SeniorMechTechF Russ Rucinski	600% 100%	\$1,378.80 \$0.00	\$0.00 \$0.00	\$0.00	\$1,378.80 \$0.00	48 h 8 h	0 h 0 h	0 h 0 h	0 h 0 h					
	Notes															
		Definition- sk closes the EF's , ma	akes a final	leak check of	of SNEG/Cross jo	ints, removes	leak checking	bags, installs	SNEG heat	tapes.						
	M&S B				,	,	J J	3-,		,						
	NA															
	Labor E	BOE-	marianaa fa	rma tha haai	is of actimate for	ffort										
	Kuilla	and 2004 shudown ex	cpenence to	iiiis tiie basi	is or estimate for t	ellort.										
1.5.6.27.5		Activate SNEG's	S					Thu 1/5/0	06	Fri 1/6/06		\$0.00	\$0.00	\$1,678.40	\$1,678.40	
	ID 39	Resource Name SeniorMechEngF	Units 100%	Cost \$759.20	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$759.20	Work O	vt. Work 0 h	Baseline Work Ac	t. Work 0 h	Rem. Work 16 h	=			
	40 59	SeniorMechTechF Russ Rucinski	200% 100%	\$919.20 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$919.20 \$0.00	32 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	32 h 16 h				
	Notes		100%	\$0.00	φυ.υυ	\$0.00	φ0.00	1011	0 II	Oll	011	1011				
	WBS D	Definition- sk bakes out the SNE	G pipos (49	houre)												
			G pipes (40	nours).												
	M&S B NA	OE-														
	Labor E	BOE-														
	2004 s	hudown experience for	rms the bas	is of estimat	e for effort.											
1.5.6.27.6		Close CF's, Exte	end Muor	Shields T	Test Magnet P	ower Suppl	lie [,]	Thu 1/5/0	06	Thu 1/5/06		\$0.00	\$0.00	\$1,988.20	\$1,988.20	
1.0.0.27.0	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost		vt. Work		t. Work	Rem. Work	ψ0.00	ψ1,000.20	ψ1,000.20	
	39 40	SeniorMechEngF SeniorMechTechF	100% 400%	\$379.60 \$919.20	\$0.00 \$0.00	\$0.00 \$0.00	\$379.60 \$919.20	8 h 32 h	0 h 0 h	0 h 0 h	0 h 0 h	8 h 32 h	•			
	41 59	SurveyorF Russ Rucinski	300% 100%	\$689.40 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$689.40 \$0.00	24 h 8 h	0 h 0 h	0 h 0 h	0 h 0 h	24 h 8 h				
	Notes															
		Definition- sk closes the CF yoke	s, extends t	he muon shi	elds if required, e	xercises magn	net power supp	lies.								
	M&S B					ŭ										
	NA	0_														
	Labor E		h:££	:												
	Runiia	experience forms the	dasis of est	imate for eff	ort.											
1.5.6.27.7		Make Stickmike	survey					Fri 1/6/0	06	Fri 1/6/06		\$0.00	\$0.00	\$0.00	\$0.00	
	Notes											·	·	·	·	
		Definition- sk makes stickmike su	rvey of CF's	s, EF's.												
	M&S B	OE-														
	NA															
	Labor E		h:££	:												
	Kunila	experience forms the	Dasis of est	imate for eff	υπ.											
1.5.6.27.8		Retract Muon S	hields					Fri 1/6/0	06	Fri 1/6/06		\$0.00	\$0.00	\$1,298.80	\$1,298.80	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work O	vt. Work	Baseline Work Ac	t. Work	Rem. Work		, ,=====	. ,	
	39	SeniorMechEngF	100%	\$379.60	\$0.00	\$0.00	\$379.60	8 h	0 h	0 h	0 h	8 h				

		Name							Start	Fini	sh	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
"Retract N	∕luon Sh	nields" continued														
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
	40 59	SeniorMechTechF Russ Rucinski	400% 100%	\$919.20 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$919.2 \$0.0	0 32 h 0 8 h	0 h 0 h	0 h 0 h	0 h 0 h	32 h 8 h				
	Notes															
		efinition-														
		sk opens the forward	muon sniela	irig.												
	M&S B NA	OE-														
	Labor E	BOE- and 2004 shudown e	vnerience fo	rms the has	sis of estimate for	effort										
	rtainia	ana 2004 shadown c	Apenence to	inio ale bas	no or commute for	CHOIL.										
1.5.6.27.9	9	Install FPD Vet	o Counter	s on SNE		end Muon S	Shie	Mon	1/9/06	Mon 1/9/	06	\$0.00	\$0.00	\$1,298.80	\$1,298.80	
	ID 39	Resource Name SeniorMechEngF	Units	Cost \$379.60	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$379.6	Work 0 8 h	Ovt. Work	Baseline Work	Act. Work	Rem. Work 8 h				
	40	SeniorMechTechF	100% 400%	\$919.20	\$0.00	\$0.00	\$919.2	0 32 h	0 h 0 h	0 h 0 h	0 h	32 h				
	59	Russ Rucinski	100%	\$0.00	\$0.00	\$0.00	\$0.0	0 8 h	0 h	0 h	0 h	8 h				
	Notes WRS D	efinition-														
		sk installs the FPD ve	eto counters,	extends the	e forward muon s	hielding. The	detector is re	eady for resu	umption of the	Tevatron.						
	M&S B	OE-														
	NA															
	Labor E	BOE-														
		and 2004 shudown e	experience fo	rms the bas	sis of estimate for	effort.										
1.5.6.28		Detector Clos	ad for Bac	umntion	of Toyotron			Mon	1/9/06	Mon 1/9/	ne	\$0.00	\$0.00	\$0.00	\$0.00	
1.3.0.20	Notes	Detector Clos	eu ioi kes	sumption	i or revairon			WIOII	1/9/00	WOII 1/9/	00	\$0.00	\$0.00	\$0.00	\$0.00	
	WBS D	efinition-														
	Milesto	ne- Runllb detector of	losed and re	ady for phys	sics.											
45000					1			100 140	log log	TI 4/40		***	40.00	***	40.00	
1.5.6.29	Motoo	Commission S	Silicon On	line Rea	dout Softwar	е		Wed 12/	28/05	Thu 1/12/	06	\$0.00	\$0.00	\$0.00	\$0.00	
	WBS D	efinition-														
	This ta:			Inline Deed	out Software, wh	ich includesth	e unpacking	software wh	ich facilitates t	ne data transfer fro	m electronic	coordinates to ph	ysics coordinates, a	nd the unpacking softwa	re for L3 and offline analysis	The majority
	thic cof	sk provides for the te	sting of the C	odified for a	use at SiDet for the		% cilican tact	etande nri		the Run III chutda						
	this sof	sk provides for the te tware is taken from F ipsed times for the ta	Run IIa and m	nodified for u	use at SiDet for tl			stands, prid			he task dura	tions dialate.				
156291	this sof The ela	tware is taken from F upsed times for the ta	Run IIa and m sks assume	nodified for u immediate a	use at SiDet for the det			stands, pricetc. If the Te	evatron has res	umed operations, t			\$0.00	\$0.00	·	
1.5.6.29.1	this sof The ela	tware is taken from F psed times for the ta Verify functiona	Run lla and m sks assume ality of all S	indified for using the second	use at SiDet for the det vare - Univ	ector to resolv	ve mapping, e	stands, pridetc. If the Te	evatron has res /28/05	Thu 1/12/	06	\$0.00	\$0.00	\$0.00	\$0.00	
1.5.6.29.1	this sof The ela	tware is taken from F upsed times for the ta	Run İla and m sks assume ality of all S	indified for using the second	use at SiDet for the det vare - Univ	ector to resol		stands, pridetc. If the Te	evatron has res /28/05	Thu 1/12/	06		\$0.00	\$0.00	·	
1.5.6.29.1	this sof The ela	tware is taken from F psed times for the ta Verify functiona Resource Name PhysicistU	Run İla and m sks assume ality of all S	immediate a	use at SiDet for the det access to the det vare - Univ	ector to resolv	ve mapping, e	work	evatron has res 28/05 Ovt. Work	Thu 1/12/ taseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	·	
1.5.6.29.1	this sof The ela	tware is taken from F psed times for the ta Verify functiona Resource Name PhysicistU efinition-	Run IIa and m sks assume ality of all S Units 0 400%	immediate a SMT softv Cost Be \$0.00	use at SiDet for the det vare - Universeline Cost A \$0.00	ector to resolv	Rem. Cost	work 0	evatron has res 28/05 Ovt. Work	Thu 1/12/ taseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	·	
1.5.6.29.1	this sof The ela	tware is taken from F psed times for the ta Verify functiona Resource Name PhysicistU	Run IIa and m sks assume ality of all S Units 400%	SMT softv Cost Be \$0.00	use at SiDet for the det access to the det access to the det access to the det access to the det access to the det access to the det access to the det access to the detail access to the access to th	act. Cost F \$0.00	Rem. Cost \$0.00	work 0	evatron has res 28/05 Ovt. Work	Thu 1/12/ taseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	· 	
1.5.6.29.1	this sof The ela	tware is taken from Fi posed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the function packing software (eli	Run IIa and m sks assume ality of all S Units 400%	SMT softv Cost Be \$0.00	use at SiDet for the det access to the det access to the det access to the det access to the det access to the det access to the det access to the det access to the detail access to the access to th	act. Cost F \$0.00	Rem. Cost \$0.00	work 0	evatron has res 28/05 Ovt. Work	Thu 1/12/ taseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	· 	
1.5.6.29.1	this sof The ela	tware is taken from Fi posed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the function packing software (eli	Run IIa and m sks assume ality of all S Units 400%	SMT softv Cost Be \$0.00	use at SiDet for the det access to the det access to the det access to the det access to the det access to the det access to the det access to the det access to the detail access to the access to th	act. Cost F \$0.00	Rem. Cost \$0.00	work 0	evatron has res 28/05 Ovt. Work	Thu 1/12/ taseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	· 	
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1.5.6.29.1	this sof The ela ID 12 Notes WBS D This tau data ur M&S B NA Labor E	tware is taken from Fi posed times for the ta Verify functions Resource Name PhysicistU efinition- sk verifies the function packing software (el-	Run IIa and m sks assume Ality of all S Units 400% nality of the rectronics to p	immediate a SMT softv Cost Be \$0.00 monitoring a physics additional and a second a second and a second a	use at SiDet for the access to the det vare - Univ aseline Cost A \$0.00 and downloading ressing), L3/offil	software of all ne software (Rem. Cost \$0.00	stands, prictic. If the Televiside Wed 12/	evatron has res	Thu 1/12/ Thu 1/12/ asseline Work A	06 ct. Work	\$0.00 Rem. Work	\$0.00	\$0.00	· 	
	this sof The ela ID 12 Notes WBS D This ta: data ur M&S B NA Labor E This eff	tware is taken from F ppsed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the functio packing software (el- OE- OG- ort is primarily based	Run IIa and m sks assume ality of all S Units 400% nality of the rectronics to p	odified for rimmediate a SMT softv Cost Be \$0.00 monitoring a shysics addi	use at SiDet for the access to the det vare - Univ asseline Cost ASO.00 and downloading ressing), L3/offling function of well-u	software of all ne software (Rem. Cost \$0.00	stands, prictic. If the Televiside Wed 12/	vevatron has res	Thu 1/12/ Thu 1/12/ asseline Work A	06 ct. Work 0 h	\$0.00 Rem. Work	\$0.00	\$0.00	· 	
	this sof The ela ID 12 Notes WBS D This ta: data ur M&S B NA Labor E This eff	tware is taken from F psed times for the ta Verify functions Resource Name PhysicistU efinition- sk verifies the function packing software (eli OE- OE- Verify functions Resource Name	Aun IIa and makes assume ality of all \$\frac{Units}{400\%}\$ I on verifying ality of all \$\frac{V}{V}\$ Units 0	codified for timmediate a SMT softwood SMT s	use at SiDet for the access to the det vare - Univ seeline Cost & \$0.00 and downloading ressing), L3/offlith function of well-uvare - FNAL	software of al ne software (Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) S, Wed 12/ Work (Wed 12/ Work (Wed 12/ Work (Wed 12/ Work (Wed 12/	vevatron has res	Thu 1/12/ Passeline Work A O h Thu 1/12/	06 ct. Work 0 h	\$0.00 Rem. Wark 320 h			\$0.00	
	this sof The ela I ID 12 Notes WBS D This taidata ur M&S B NA Labor E This eff	tware is taken from F psed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the function packing software (ele OE- OE- Verify functiona	Aun IIa and makes assume ality of all \$\frac{Units}{400\%}\$ I on verifying ality of all \$\frac{V}{V}\$ Units 0	odified for trimmediate a SMT software SMT sMT software SMT sMT software SMT sMT sMT sMT sMT sMT sMT sMT sMT sMT s	use at SiDet for the access to the det vare - Univ seeline Cost & \$0.00 and downloading ressing), L3/offlith function of well-uvare - FNAL	software of al ne software (Rem. Cost \$0.00 I silicon crate Examine).	stands, prictors (fithe Tetro) Wed 12/ Work (12/ 320 h) s, adde to the R Wed 12/	(28/05) Dvt. Work 0 h	Thu 1/12/ Passeline Work A O h Thu 1/12/	06 ct. Work 0 h	\$0.00 Rem. Work 320 h			\$0.00	
1.5.6.29.1	this sof The ela ID 12 Notes WBS D This ta: data ur M&S B NA Labor E This eff	tware is taken from F ppsed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the functio packing software (el- OE- OCE- OT is primarily based Verify functiona Resource Name PhysicistF	Aun IIa and makes assume ality of all \$\frac{Units}{400\%}\$ I on verifying ality of all \$\frac{V}{V}\$ Units 0	codified for timmediate a SMT softwood SMT s	use at SiDet for the access to the det ware - Univ aseline Cost A \$0.00 and downloading ressing), L3/offlit function of well-uware - FNAL aseline Cost A	lct. Cost F \$0.00 software of al ne software (Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) S, Wed 12/ Work (Wed 12/ Work (Wed 12/ Work (Wed 12/ Work (Wed 12/	evatron has res (28/05 Ovt. Work O h Lun IIa software (28/05 Ovt. Work Evat. IIa software (28/05) Ovt. Work Evat. IIa software	Thu 1/12/ laseline Work A 0 h Thu 1/12/ c. Thu 1/12/ laseline Work A	06 ct. Work 0 0 h	\$0.00 Rem. Work 320 h			\$0.00	
	this sof The ela ID 12 Notes WBS D This tai data ur M&S B NA Labor E This eff	tware is taken from Repsed times for the ta Verify functions Resource Name PhysicistU efinition- sets verifies the function packing software (el- OE- SOE- fort is primarily based Verify functiona Resource Name PhysicistF efinition-	Aun II a and m sks assume ality of all \$\frac{Units}{400\%}\$ Inality of the rectronics to pure ality of all \$\frac{Units}{400\%}\$ Units	immediate as SMT softwood immediate as SMT softwood Be So.00 monitoring a shrysics additionable and the proper is SMT softwood Be So.00	use at SiDet for the access to the det vare - Univ aseline Cost A \$0.00 and downloading ressing), L3/offil function of well-uvare - FNAL aseline Cost A \$0.00	software of all ne software (nderstood me	Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) Wed 12/ Work (42) Wed 12/ Work (430 h)	evatron has res (28/05 Ovt. Work O h Lun IIa software (28/05 Ovt. Work Evat. IIa software (28/05) Ovt. Work Evat. IIa software	Thu 1/12/ laseline Work A 0 h Thu 1/12/ c. Thu 1/12/ laseline Work A	06 ct. Work 0 0 h	\$0.00 Rem. Work 320 h			\$0.00	
	this sof The ela ID 12 Notes WBS D This ta: data ur M&S B NA Labor E This eff	tware is taken from F ppsed times for the ta Verify functiona Resource Name PhysicistU efinition- sk verifies the functio packing software (el- OE- OCE- OT is primarily based Verify functiona Resource Name PhysicistF	Aun II a and m sks assume ality of all S Units 400% I on verifying ality of all S Units 400% Aunity of all S Units 400%	odified for timmediate a SMT softwood SMT so	use at SiDet for the access to the det ware - Univ aseline Cost A \$0.00 and downloading ressing), L3/offli function of well-uware - FNAL aseline Cost A \$0.00 and downloading and downloading and downloading and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and the seline Cost A \$0	software of all ne software (social contents of the social content	Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) Wed 12/ Work (42) Work (43)	evatron has res (28/05 Ovt. Work O h Lun IIa software (28/05 Ovt. Work Evat. IIa software (28/05) Ovt. Work Evat. IIa software	Thu 1/12/ laseline Work A 0 h Thu 1/12/ c. Thu 1/12/ laseline Work A	06 ct. Work 0 0 h	\$0.00 Rem. Work 320 h			\$0.00	
	this sof The ela ID 12 Notes WBS D This ta: data ur M&S B NA Labor E This eff	tware is taken from Repsed times for the ta Verify functions Resource Name PhysicistU efinition- sk verifies the function packing software (el- OE- OE- OE- OF functions Resource Name PhysicistF efinition- sk verifies the function packing software (el-	Aun II a and m sks assume ality of all S Units 400% I on verifying ality of all S Units 400% Aunity of all S Units 400%	odified for timmediate a SMT softwood SMT so	use at SiDet for the access to the det ware - Univ aseline Cost A \$0.00 and downloading ressing), L3/offli function of well-uware - FNAL aseline Cost A \$0.00 and downloading and downloading and downloading and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and the seline Cost A \$0	software of all ne software (social contents of the social content	Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) Wed 12/ Work (42) Work (43)	evatron has res (28/05 Ovt. Work O h Lun IIa software (28/05 Ovt. Work Evat. IIa software (28/05) Ovt. Work Evat. IIa software	Thu 1/12/ laseline Work A 0 h Thu 1/12/ c. Thu 1/12/ laseline Work A	06 ct. Work 0 0 h	\$0.00 Rem. Work 320 h			\$0.00	
	this sof The ela ID 12 Notes WBS D This ta- data ur M&S B NA Labor E This eff	tware is taken from Repsed times for the ta Verify functions Resource Name PhysicistU efinition- sk verifies the function packing software (el- OE- OE- OE- OF functions Resource Name PhysicistF efinition- sk verifies the function packing software (el-	Aun II a and m sks assume ality of all S Units 400% I on verifying ality of all S Units 400% Aunity of all S Units 400%	odified for timmediate a SMT softwood SMT so	use at SiDet for the access to the det ware - Univ aseline Cost A \$0.00 and downloading ressing), L3/offli function of well-uware - FNAL aseline Cost A \$0.00 and downloading and downloading and downloading and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and downloading access to the detailed as a seline Cost A \$0.00 and the seline Cost A \$0	software of all ne software (social contents of the social content	Rem. Cost \$0.00 I silicon crate Examine).	stands, prictic. If the Te Wed 12/ Work (320 h) Wed 12/ Work (42) Work (43)	evatron has res (28/05 Ovt. Work O h Lun IIa software (28/05 Ovt. Work Evat. IIa software (28/05) Ovt. Work Evat. IIa software	Thu 1/12/ laseline Work A 0 h Thu 1/12/ c. Thu 1/12/ laseline Work A	06 ct. Work 0 0 h	\$0.00 Rem. Work 320 h			\$0.00	
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VBS		Name							Start		Finish	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
5.7		Silicon System	m Ready fo	or Physics	Commissio	ning		Thu	ı 1/12/06		Thu 1/12/06	\$0.00	\$0.00	\$0.00	\$0.00	
	Notes	# 1:1														
		efinition- ne-The RunIIb silico	n svstem has	been installed	d. technically cor	mmisioned.	and is read	v for physic	cs commiss	ionina.						
					<u> </u>	-		,		- 3						
5.8		Run IIb Trigge	er Installat	ion & Tech	nnical Comm	nissionin	ıg	Mo	n 1/5/04		Fri 2/10/06	\$145,500.00	\$0.00	\$377,957.60	\$523,457.60	
	Notes	efinition-														
			includes upo	grades to thre	e systems - the l	Level 1 cald	orimeter triad	er. a calor	rimeter clus	ter track ma	atch at Level 1. and	the Level 1 central tra	ck trigger, as well	as upgrades to the Level 2	beta processors and the Le	evel 2 Silicon
		. This summary WB									,		33. ,	,3	,	
5.8.1		Prepare Infras	structure a	t DAR				Mo	n 1/5/04		Wed 11/9/05	\$70,000.00	\$0.00	\$152,521.60	\$222,521.60	
	Notes											V. 0,000.00	V 0.00	V:02,02:::00	V ===,0=1100	
	WBS D	efinition-														
	This sur	mmary task includes	activities tha	t must take pl	ace to ensure th	at all infras	structure com	ponents re	equired for	the Run IIb	trigger (Cal L1 rack	s, Cal BLS cables, L1	Cal/Track Match c	rates, boards, and cables)	are in hand prior to shutdow	vn.
5.8.1.1		Prepare new L	1 Cal Rack	(S				Mo	n 1/5/04		Mon 12/13/04	\$35,000.00	\$0.00	\$74,064.00	\$109,064.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Co	ost Ren	n. Cost	Work	Ovt. Work	Baseline Work	Act. Work Rem.	Work			
	37	SeniorElecEngF	50%	\$45,264.00	\$0.00		64.00	\$0.00	960 h	01		960 h	0 h			
	38 48	SeniorElecTechF MandS	50% 35,000	\$28,800.00 \$35,000.00	\$0.00 \$0.00			\$0.00 \$0.00	960 h 35,000	01	0 h	960 h 35,000	0 h 0			
	72	John Anderson	25%	\$0.00	\$0.00	9 .	\$0.00	\$0.00	480 h	01		480 h	0 h			
	76	Tom Regan	25%	\$0.00	\$0.00	,	\$0.00	\$0.00	480 h	01	0 h	480 h	0 h			
	Notes	efinition-														
			w I 1 Cal rack	e with water o	ooling air blowe	are eafative	eveteme nou	er cunnlia	e voltage r	nonitoring	monitoring and alar	m software AC and D	nower In additio	n four racks with no coolin	ng must be provided. This wo	ork must ha
		the racks are require			Journey, air blowe	ers, salety s	systems, pow	vei supplie	s, voltage i	nonitoning,	nonitoring and alan	ili soltware, AC and D	5 power. III additio	ii, ioui racks wiiii iio cooiii	ig must be provided. This wi	OIK IIIUSI DE
		•														
	M&S BO							.								
	Protecte	ed & cooled racks a	ind equipment	t to be installe	ed as described a	above: \$750	00 per rack,	R.Hance	3/12/2002 €	estimate. P	assive racks \$500 e	each (Fermilab stock it	em).			
	Labor B	ROF-														
	Detailed	d estimate by D. Edr	nunds of labo	r involved (se	e supporting dod	cuments). A	Assumes 6 m	onths of p	reparatory	work by an	electrical engineer a	and a physicist + 1 we	ek of cabling, testir	ng, etc. per rack for a techi	nician, and part-time oversig	ht by an ele
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WBS		Name							Start	I	inish	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
1.5.8.1.5		Provide for BL	S cable r	e-routing	g: UIC			Wed	5/26/04	Fri 1/2	21/05	\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
	12	PhysicistU	50%	\$0.00	\$0.00	\$0.00	\$0.00	640 h	0 h	0 h	640 h	0 h				
	46	SeniorMechEngU	10%	\$0.00	\$0.00	\$0.00	\$0.00	128 h	0 h	0 h	128 h	0 h				
	75	Alan Stone	50%	\$0.00	\$0.00	\$0.00	\$0.00	640 h	0 h	0 h	640 h	0 h				
	77	Dan Edmunds	10%	\$0.00	\$0.00	\$0.00	\$0.00	128 h	0 h	0 h	128 h	0 h				

WBS Definition-

Plan routing of BLS cables to ADF. This will involve verifying that the plan is feasible in the Dzero Moving Counting House. This item represents the UIC part of the effort.

Preliminary scheme involves creation of patch panels with paddle boards and short cables to allow existing BLS cables (1280) to be routed to new ADF (40) via cables (160 "pleated foil" cables), paddle cards (80 cards, 2 pleated foil inputs each, connects to ADF) and patch panels (80 panels, 16 BLS input, 2 pleated foil outputs)

M&S BOE-

\$35,000 for patch panels, paddle cards, pleated foil cables to ADF (J. Green detailed estimate 7/04).

Labor BOE-

Advising by MSU engineer as needed, ongoing effort of Johnny Green (FNAL), physicist (Alan Stone)

Provide for BLS cable re-routing: FNAL 1.5.8.1.6 Wed 5/26/04 Fri 1/21/05 \$35,000.00 \$0.00 \$60,352.00 \$95,352.00 Resource Name Baseline Work Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Act Work Rem. Work \$0.00 1,280 h 0 h 1,280 h 48 MandS 35,000 \$35,000,00 \$0.00 \$35,000,00 \$0.00 35,000 Ω 35,000 Ω 85 Johnny Green 100% \$0.00 \$0.00 \$0.00 \$0.00 1,280 h 0 h 0 h 1,280 h 0 h

Notes

WBS Definition-

Plan routing of BLS cables to ADF. This will involve verifying that the plan is feasible in the Dzero Moving Counting House. This item represents the UIC part of the effort.

Preliminary scheme involves creation of patch panels with paddle boards and short cables to allow existing BLS cables (1280) to be routed to new ADF (40) via cables (160 "pleated foil" cables), paddle cards (80 cards, 2 pleated foil inputs each, connects to ADF) and patch panels (80 panels, 16 BLS input, 2 pleated foil outputs)

M&S BOE-

\$35,000 for patch panels, paddle cards, pleated foil cables to ADF (J. Green detailed estimate 7/04).

Advising by MSU engineer as needed, ongoing effort of Johnny Green (FNAL), physicist (Alan Stone)

1.5.8.1.7		Make Muon P	DT and S	FE Mods fo	r CTM			Fri 1/7	/05	Fri 3/4/05	5	\$0.00	\$0.00	\$15,088.00	\$15,088.00
	ID	Resource Name	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work					
	11	PhysicistF	\$0.00	\$0.00	\$0.00	32 h	0 h	0 h	8 h	24 h					
	37	SeniorElecEngF	100%	\$15,088.00	\$0.00	\$3,772.00	\$11,316.00	320 h	0 h	0 h	80 h	240 h			
	86	Sten Hansen	100%	\$0.00	\$0.00	\$0.00	\$0.00	320 h	0 h	0 h	80 h	240 h			
	87					\$0.00	\$0.00	160 h	0 h	0 h	40 h	120 h			
	92	Al Ito							0 h	0 h	8 h	24 h			

Develop and demonstrate modification of muon PDT frontends for pipeline extension, and firmware for Scintillator front ends.

M&S BOE -

Labor BOE - Run2a muon Level 1 experience with PDT board maintenance & development. Sten Hansen develops PDT board change at "mini", Al Ito proves R&D board (s) performance in detector. Tom Fitzpatrick develops Scintillator Firmware.

1.5.8.1.8 \$0.00 Develop Trigsim Software-U Wed 11/24/04 Tue 3/29/05 \$0.00 \$0.00 \$0.00 Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work \$0.00 \$0.00 \$0.00 \$0.00 960 h

WBS Definition-

Develop L2STT, Ratetool, Trigsimcert software.

Labor BOE- Effort not provided by Upgrade. Three physicists working full time for 16 weeks (~ 1 man-year).

\$0.00

1.5.8.1.9 Develop Trigsim Software-FNAL Wed 11/24/04 Tue 3/29/05 \$0.00 \$0.00 \$0.00 \$0.00 Resource Name Units Cost Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 \$0.00 \$0.00 960 h

Notes

WBS Definition-

Physicisti

Develop L2STT, Ratetool, Trigsimcert software.

M&S BOE-

Labor BOE- Three physicists working full time for 16 weeks (~ 1 man-year), not provided by Upgrade. Share with U as soon as specified.

\$0.00

Develop Ti	Name			Start	Finish	M&S EQ	M&S Labor	FNAL Labor	Total Cost
	rigsim Software-FNAL" continued	1							
	Notes								
5.8.1.10	Develop CTM Operating	Software-Arizona		Wed 3/2/05	Thu 7/21/05	\$0.00	\$0.00	\$0.00	\$0.00
7.0.1.10			ct. Cost Rem. Cost		aseline Work Act. Work	Rem. Work	Ψ0.00	ψ0.00	ψ0.00
	12 PhysicistU 100%	\$0.00 \$0.00	\$0.00 \$0.00	800 h 0 h	0 h 0 h	800 h			
:	Notes WBS Definition- Develop software required to operate CT script; COOR trigger terms download; ad documentation; Develop offline software: read L1CTM fro M&S BOE- NA	dd L1CTM to online simulator	-hardware comparison co	de, to online efficiency code	generate first-pass trigger lo				
	Labor BOE- two physicists working full tir	me. Effort not managed by U	pgrade Project.						
5.8.1.11	Dayolan CTM Operating	Software ENAL		Wed 3/2/05	Thu 7/21/05	\$0.00	\$0.00	\$0.00	\$0.00
).0.1.11	Develop CTM Operating ID Resource Name Units		ct. Cost Rem. Cost		aseline Work Act. Work	ф0.00 Rem. Work	φ0.00	φυ.υυ	φυ.υυ
	11 PhysicistF 100%	\$0.00 \$0.00	\$0.00 \$0.00	800 h 0 h	0 h 0 h	800 h			
	documentation; Develop offline software: read L1CTM fro M&S BOE- NA Labor BOE- two physicists working full tin				B); examine; documentation				
5.8.1.12	Develop CTT Operating S	Software-Upgrade		Wed 1/19/05	Wed 6/8/05	\$0.00	\$0.00	\$0.00	\$0.00
	WBS Definition- Develop software required to operate CT for Mixer-DFEB-CTOC connection test; c M&S BOE- NA Labor BOE-None. All effort provided by	create DFEB firmware for Mix	crates; raw ethernet drive er-DFEB-CTOC link test;	r; raw ethernet serializer; ad update trigsim both for new	ld DFEB + extra CTOC board and old equations; add DFEI	ds to dfe_ware dat B+new CTOC to C	tabase; add download CTT_Examine; add DF	interface for DFEB to dfe EB +new CTOC to offline	e_ware; update link test scripts + firm e verification programs;
	Preliminary Commissioni	ng of L1 CTT elements	-Upgrade	Wed 1/19/05	Wed 6/8/05	\$0.00	\$0.00	\$0.00	\$0.00
5.8.1.13	Notes WBS Definition-								
	This task provides for the precommission die_ware database, download interface f M&S BOE-NA Labor BOE- None. All effort provided by	for DFEB to dfe_ware,is ver		ller also) as they become av	allable. All operating softwa	re PS control fo	r DFEB crates, raw eth	nernet driver, raw etheme	et serializer, DFEB boards added to
	This task provides for the precommission dfe_ware database, download interface f M&S BOE-NA	for DFEB to dfe_ware,is ver	rified during these tests.	Tue 6/21/05	vailable. All operating software was a second with the second second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second was a second with the second with the second was a second with the second wi	re PS control fo	r DFEB crates, raw eth	nernet driver, raw etheme	et serializer, DFEB boards added to \$\text{\$\text{\$}}\$\$
	This task provides for the precommission dfe_ware database, download interface f M&S BOE-NA Labor BOE- None. All effort provided by Preliminary Commissionii 1D Resource Name Units Commissionii 12 PhysicistU 50%	for DFEB to dfe_ware,is ver Upgrade Project. ng of L1 CTM elements	rified during these tests.	Tue 6/21/05					
5.8.1.14	This task provides for the precommission dfe_ware database, download interface f M&S BOE-NA Labor BOE- None. All effort provided by Preliminary Commissionii ID Resource Name Units Commissionii ID Resource Name Units	or DFEB to dfe_ware,is ver Upgrade Project. ng of L1 CTM elements Description	s-Arizona s: Rem. Cost Rem. Cost \$0.00 \$0.00	Tue 6/21/05 Work Ovt. Work Ba 400 h 0 h	Wed 11/9/05 sseline Work Act. Work 0 h 0 h	\$0.00 Rem. Work 400 h	\$0.00	\$0.00	\$0.00
5.8.1.14	This task provides for the precommission dfe_ware database, download interface f M&S BOE-NA Labor BOE- None. All effort provided by Preliminary Commissionii D Resource Name Units Commission 12 PhysicistU 50% Notes WBS Definition-This task provides for the installation of L	or DFEB to dfe_ware,is ver Upgrade Project. ng of L1 CTM elements Description	s-Arizona s: Rem. Cost Rem. Cost \$0.00 \$0.00	Tue 6/21/05 Work Ovt. Work Ba 400 h 0 h	Wed 11/9/05 sseline Work Act. Work 0 h 0 h	\$0.00 Rem. Work 400 h	\$0.00	\$0.00	\$0.00

WBS		Name							Start		Finish	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
1.5.8.1.15		Preliminary Co	ommissio	oning of	L1 CTM eleme	ents-FNAL		Tue	6/21/05	Wed 1	1/9/05	\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work				
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	400 h	0 h	0 h	Ωh	400 h				

WBS Definition-

This task provides for the installation of L1MU trigger and crate manager cards in new L1 CTM crate installed in MCH1, begin the technical commissioning of L1 CTM (BOT triggers to TFW, etc.) then replace with production L1 CTM trigger and crate manager

M&S BOE-

Labor BOE-

Two university physicists working half time are required for this task. Task duration extends until last hardware component of L1 CTM is installed in MCH1.

1.5.8.1.16 **Prepare Safety and PORC documentation** Mon 8/23/04 Mon 6/20/05 \$0.00 \$0.00 \$3,017.60 \$3,017.60

Notes WBS Definition-

This summary task prepares necessary PORCs ("Partial Operational Readiness Clearance") safety documentation for unattended operation of new hardware for trigger upgrade.

1.5.8.1.16.1 Prepare L1CTT DFEB PORC Documentation Mon 8/23/04 Fri 8/27/04 \$0.00 \$0.00 \$1,131.60 \$1,131.60 Resource Name Units Cost Work Ovt. Work Baseline Work Act. Work Rem. Work Baseline Cost Act. Cost Rem. Cost 37 SeniorFlecEnal 60% \$1.131.60 \$0.00 \$1.131.60 \$0.00 24 h 0h0h24 h 0hJohn Anderson 10% \$0.00 \$0.00 \$0.00 \$0.00 4 h 0 h 0 h 4 h 0 h 20 h 20 h Jamieson Olson 50%

Notes

This task provides effort for the preparation of the safety documentation and PORC, including "walk-thrus" required for permission to operate the system, for the DFE crates and power supplies installed on the platform.

M&S BOS-

None

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, one week time by an electrical engineer, and physicist are required for this task. Jamieson Olson is the preferred engineer.

1.5.8.1.16.2 Prepare PORC for L1CTM Crates - FNAL \$1,886.00 \$1,886.00 Tue 6/7/05 Mon 6/20/05 \$0.00 \$0.00 Resource Name Cost Baseline Cost Ovt. Work Rem. Work ID Units Act. Cost Rem Cost Work Baseline Work Act. Work SeniorElecEngF 50% \$1,886.00 \$0.00 \$0.00 \$1,886.00 40 h 0 h 40 h 72 John Anderson 50% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0 h 0 h 40 h

Notes

WBS Definition-

This task provides effort for the preparation of the safety documentation and PORC, including "walk-thrus" required for permission to operate the system, for the L1CTM crates in MCH1. The primary emphasis of the pORC is that of the boards; the crate and installation are not novel.

M&S BOS-

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, one week time by an electrical engineer, and physicist are required for this task. Jeff Temple and John Anderson are the preferred personnel.

1.5.8.1.16.3 \$0.00 \$0.00 \$0.00 Prepare PORC for L1CTM Crates - UAZ Tue 6/7/05 Mon 6/20/05 \$0.00 Resource Name Units Cost Baseline Cost Work Ovt. Work Baseline Work Act. Work Rem. Work Act. Cost Rem. Cost \$0.00 \$0.00 \$0.00 12 PhysicistU 1 4 1 50% \$0.00 40 h 0h0 h 0 h 40 h 84 Jeff Temple 50% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0 h 0 h 40 h

Notes WBS Definition-

This task provides effort for the preparation of the safety documentation and PORC, including "walk-thrus" required for permission to operate the system, for the L1CTM crates in MCH1. The primary emphasis of the pORC is that of the boards; the crate and installation are not novel.

M&S BOS-

None.

Labor BOE-

Based on Runlla experience and considering that review/updating of existing documentation constitutes the bulk of the task, one week time by an electrical engineer, and physicist are required for this task. Jeff Temple and John Anderson are the preferred

1.5.8.1.17 **Trigger Safety and PORC Documentation Completed** Mon 6/20/05 Mon 6/20/05 \$0.00 \$0.00 \$0.00 \$0.00

VBS		Name						Sta		Finish			M&S Labor	FNAL Labor	Total Cost	
.5.8.2		Trigger Infras	tructure F	Prepared				Fri 7/15/0)5	Fri 7/15/05		\$0.00	\$0.00	\$0.00	\$0.00	
	Milesto	efinition- ne- Trigger Infrastru												sidewalk; the planning fo e MTCxx and MTCM ele	r the rerouting of the Ca ectronics in the crate;	BLS cables in MCI
.5.8.3		AFEII Stuff					V	Ved 12/1/0)4	Thu 1/6/05	i	\$0.00	\$0.00	\$0.00	\$0.00	
.5.8.4		Detector Repa	ir and Mai	intenance			ı	Mon 10/3/0)5	Tue 11/29/05	i	\$0.00	\$0.00	\$0.00	\$0.00	
.5.8.5	Notes	Cal Maintenan	ce	_			ſ	Mon 10/3/0	05	Tue 11/29/05		\$0.00	\$0.00	\$0.00	\$0.00	
		or preamp power su to begin when L1cal			aintenance											
.5.8.6	Notes	Level 1 Calori	imeter Tri	gger				Fri 7/15/0)5	Wed 1/4/06	\$73,0	00.00	\$0.00	\$160,825.50	\$233,825.50	
	This su	efinition- Immary element cove h between calorimete											ocurement of trig	gger-algorithm boards (1	AB), the provision of ou	tput signals to facil
.5.8.6.1	Notes	L1 Cal Trigge	r Product	ion And T	esting Compl	ete		Fri 7/15/0)5	Fri 7/15/05		\$0.00	\$0.00	\$0.00	\$0.00	
	WBS D Milestor	efinition- ne- All L1 Cal comp	rates are acc	ceptable - corr	esponding to app	roximately 1 fa	atal error per da	y at nominal	data volumes	s. Milestone is ach	ney were deve ieved when th	loped. Tests c e number of bo	onsist of using si pards required in	mulated inputs to verify the system (80 ADFs, 8	that all the outputs of the TABs and 1 GAB) have	board are as passed the bench
5.8.6.2		efinition-		=				Fri 7/15/0		Wed 1/4/06	\$73,0	00.00	\$0.00	\$160,825.50	\$233,825.50	
.5.8.6.2.1		mmary task describe Engineering ar				-	ero moveable c	Fri 7/15/0		Tue 12/20/05	<u> </u>	\$0.00	\$0.00	\$108,372.00	\$108,372.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	_	, , , , , , , , , , , , , , , , , , , ,	,,.	
	13 37	CompProfF SeniorElecEngF	200% 100%	\$66,880.00 \$41,492.00	\$0.00 \$0.00	\$0.00 \$0.00	\$66,880.00 \$41,492.00	1,760 h 880 h	0 h 0 h	0 h 0 h	0 h 0 h	1,760 h 880 h				
		efinition- sk provides for the s	upport of two	- o computing p	rofessionals and	one electrical	engineer full tim	e for oversig	ht, consultation	on and testing/mor	nitoring softwa	re tasks during	trigger installation	on effort.		
	M&S B	OE-														
	Labor E				I											
	Kun IIa	experience forms th	ie basis of th	iis estimate	Jamieson Olson is	s the preferred	a electrical engli	ieer.								
5.8.6.2.2		Engineering S	Support - N	//SU				Fri 7/15/0)5	Tue 12/20/05	\$72,0	00.00	\$0.00	\$0.00	\$72,000.00	
	ID 44	Resource Name SeniorElecEngU	Units 200%	Cost \$0.00	Baseline Cost \$0.00	Act. Cost \$0.00	Rem. Cost \$0.00	Work 1,760 h	Ovt. Work 0 h	Baseline Work	Act. Work	Rem. Work 1,760	<u></u>			
	48 77 78	MandS Dan Edmunds Phillipe Laurens	72,000 100% 100%	\$72,000.00 \$0.00 \$0.00	\$0.00 \$0.00 \$0.00	\$0.00 \$0.00	\$72,000.00 \$0.00	72,000 880 h 880 h	0 h 0 h	0 F	0 6	72,00 880	0 h			
	Notes WBS D	efinition-		_						14						
	M&S B			•			,	J	•	· ·	nitoring tasks o	uring trigger ir	stallation effort.			
	Sufficie	ent M&S for the supp	ort of the Un	uversity engin	eers for the durati	on of the proje	ect. starting whe	en ∟1Cal Trio	tabrication is	completed						
	Labor E	BOE-					, .		, rabilidation lo	completed.						

12 PhysicistU

1.5.8.6.2.3

Resource Name

Complete System Integration Tests on Sidewalk - UIC & CU

Cost

Notes
WBS DefinitionThis task completes the integration tests on the sidewalk of the completed L1Cal Trigger system. It extends from the installation of the last ADF up to the beginning of the shutdown.

\$0.00

Baseline Cost Act. Cost Rem. Cost

\$0.00

Baseline Work

Thu 8/11/05

\$0.00

\$0.00

\$0.00

\$0.00

Fri 7/15/05

Ovt. Work

Work

320 h

M&S EQ WBS Name Start Finish M&S Labor FNAL Labor **Total Cost** "Complete System Integration Tests on Sidewalk - UIC & CU" continued Notes M&S BOE-NA Labor BOE-Estimated by people who built existing cal L1. Two shifs per day assumed. Thu 8/11/05 1.5.8.6.2.4 \$0.00 \$0.00 Complete System Integration Tests on Sidewalk - FNAL Fri 7/15/05 \$0.00 \$0.00 Resource Name Units Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work \$0.00 \$0.00 \$0.00 320 h WBS Definition-This task completes the integration tests on the sidewalk of the completed L1Cal Trigger system. It extends from the installation of the last ADF up to the beginning of the shutdown. M&S BOE-NA Labor BOE-Estimated by people who built existing cal L1. Two shifs per day assumed. 1.5.8.6.2.5 Decable BLS cables from Trigger Crates Mon 10/3/05 Fri 10/7/05 \$0.00 \$0.00 \$2.092.00 \$2.092.00 Work Baseline Work Resource Name Rem. Cost Ovt. Work Act. Work Rem. Work Units Cost Baseline Cost Act. Cost 11 12 37 40 PhysicistF 100% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0h0 h 40 h PhysicistU 400% \$0.00 \$0.00 \$0.00 \$0.00 160 h 0 h 160 h 0 h 0 h \$943.00 SeniorFlecFnaF 50% \$0.00 \$0.00 \$943.00 20 h 0 h 0 h 0 h 20 h SeniorMechTechF 100% \$1,149.00 \$0.00 \$0.00 \$1,149.00 40 h 0 h 0 h 0 h 40 h 55 Linda Bagby 100% \$0.00 \$0.00 \$0.00 \$0.00 40 h 0 h 0 h 40 h 0 h 72 75 John Anderson 50% \$0.00 \$0.00 \$0.00 \$0.00 20 h 0 h 20 h Alan Stone 100% \$0.00 \$0.00 \$0.00 \$0.00 40 h Ωh Ωh 0 h 40 h WBS Definition-Decable present 1280 BLS cables from Cal Trig Racks: add new label to each cable, dress bundles aside in plastic cableway. M&S BOE-Labor BOE-Detailed estimate by A. Stone of labor involved: 1280 BLS cables in 10 racks means 128 cables per rack. Cables in rack come in 32 bundles (4 cables per bundle). Two persons would work as a team, will be able to do 2 racks per day (256 cables). Two teams can work in MCH1 at a time. Elapsed time: 2.5 days 1.5.8.6.2.6 Depopulate and remove trigger crates Mon 10/10/05 Fri 10/21/05 \$0.00 \$0.00 \$6,482.00 \$6,482.00 ID Resource Name Units Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Baseline Work Act. Work Rem. Work 11 PhysicistF 100% \$0.00 \$0.00 \$0.00 \$0.00 80 h 0 h 0 h 0 h 80 h 12 \$0.00 \$0.00 \$0.00 \$0.00 320 h 0 h 320 h PhysicistU 400% 0 h 0 h 37 SeniorElecEngF \$1,886.00 \$0.00 \$0.00 \$1,886.00 40 h 0 h 50% 0 h 40 h \$4,596.00 40 55 SeniorMechTechF 200% \$4,596.00 \$0.00 \$0.00 160 h 0 h 160 h Linda Bagby 100% \$0.00 \$0.00 \$0.00 \$0.00 80 h Ωh Ωh 0 h 80 h 72 75 John Anderson 50% \$0.00 \$0.00 \$0.00 \$0.00 40 h Ωh Ωh 0h40 h 100% \$0.00 \$0.00 0 h Alan Stone \$0.00 \$0.00 80 h 0 h 0 h 80 h Notes This task removes boards from trigger crates after BLS cables removed, then removes crates from racks. The crates need not be recovered for service after removal. Power supplies and heat exchangers in the racks will also be removed during this task. Existing airflow ductwork at the top of the racks will likely not need to be removed. M&S BOE-NA Detailed estimate by A. Stone. Two persons working as a team can depopulate and remove crates in 1 rack per day. Two teams can fit in MCH1. Elapsed time: 5 days. 1.5.8.6.2.7 Install Rack Infrastructure in active racks Mon 10/17/05 Fri 11/4/05 \$1,000.00 \$0.00 \$29,392.50 \$30,392.50 ID Resource Name Units Baseline Cost Act. Cost Rem. Cost Work Ovt. Work Act. Work Rem. Work \$8,487.00 37 SeniorElecEngF \$8,487.00 \$0.00 \$0.00 39 SeniorMechEnaF 125% \$7,117,50 \$0.00 \$0.00 \$7,117,50 150 h 0 h 0 h 0 h 150 h 40 48 SeniorMechTechF 400% \$13 788 00 \$0.00 \$0.00 \$0.00 \$13,788,00 480 h 0 h 0 h 0 h 480 h MandS 1.000 \$1,000.00 \$0.00 \$1,000.00 1.000 1.000 50% \$0.00 \$0.00 60 h 0 h 0 h John Fogelsong \$0.00 \$0.00 0 h 60 h 72 John Anderson 100% \$0.00 \$0.00 \$0.00 \$0.00 120 h 0 h 0 h 0 h 120 h Tom Regan 100% \$0.00 \$0.00 \$0.00 \$0.00 120 h 0 h 0 h 0 h 120 h

WBS M&S EQ M&S Labor Start Finish **FNAL Labor Total Cost** Name

"Install Rack Infrastructure in active racks" continued

Notes WBS Definition-

This involves outfitting 4 of the existing racks with water supply, heat exchangers, air blowers, 1553's, RMI's, smoke and drip detectors, Pulizzi boxes (all items taken from existing spares or new units).

Estimate \$200 per rack additional small parts required.

Experience installing racks for Run1 forms the basis of estimate. Four persons can complete the four racks in one week.

1.5.8.6.2.8		Install Patch Pa	anels in P	assive Rad	cks, reconnect	BLS cable	s	Mon 11/	7/05	Fri 11/11/	05	\$0.00	\$0.00	\$4,029.00	\$4,029.00
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			
	12	PhysicistU	200%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	37	SeniorElecEngF	150%	\$2,829.00	\$0.00	\$0.00	\$2,829.00	60 h	0 h	0 h	0 h	60 h			
	38	SeniorElecTechF	100%	\$1,200.00	\$0.00	\$0.00	\$1,200.00	40 h	0 h	0 h	0 h	40 h			
	55	Linda Bagby	50%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			
	69	John Fogelsong	100%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h			
	72	John Anderson	50%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			
	75	Alan Stone	100%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h			

Notes
WBS Definition-

Installs BLS patch panels in racks, reconnect BLS cables.

M&S BOE-

NA

Labor BOE-

Estimate by A. Stone based on mockup work on sidewalk: one person can do 1 rack per day (128 cables), 10 racks involved.

1.5.8.6.2.9		Install ADF, TA	AB/GAB, F	Readout, C	ontroller Crate	S		Mon 11/	7/05	Fri 11/18/0)5	\$0.00	\$0.00	\$8,572.00	\$8,572.00
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF							0 h	0 h	0 h	80 h			
	12	PhysicistU	100%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	37	SeniorElecEngF							0 h	0 h	0 h	80 h			
	38	SeniorElecTechF	200%	\$4,800.00	\$0.00	\$0.00	\$4,800.00	160 h	0 h	0 h	0 h	160 h			
	55	Linda Bagby	100%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	69	John Fogelsong	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h					
	72	John Anderson	50%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h			
	75	Alan Stone	100%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			

Notes
WBS Definition-

Remove four TT crates from sidewalk racks, transport to MCH1, install in MCH1 racks. Ditto for TAB/GAB, readout, and controller crates.

M&S BOE-

NA

Labor BOE-

A. Stone estimate: two physicists will do 2 crates per day.

1.5.8.6.2.10		Connect Pleated Foil Cables						Mon 11/14/05		Fri 11/18/05		\$0.00	\$0.00	\$1,886.00	\$1,886.00
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work			
	11	PhysicistF	50%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			
	12	PhysicistU	200%	\$0.00	\$0.00	\$0.00	\$0.00	80 h	0 h	0 h	0 h	80 h			
	37	SeniorElecEngF	100%	\$1,886.00	\$0.00	\$0.00	\$1,886.00	40 h	0 h	0 h	0 h	40 h			
	55	Linda Bagby	50%	\$0.00	\$0.00	\$0.00	\$0.00	20 h	0 h	0 h	0 h	20 h			
	75	Alan Stone	100%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h			
	85	Johnny Green	100%	\$0.00	\$0.00	\$0.00	\$0.00	40 h	0 h	0 h	0 h	40 h			

WBS Definition-Connect pleated foil cables (40 per TT crate) from BLS patch panels.

M&S BOE-NA

Taken from cabling of the L2muon trigger system; one person can do 20 per day.

VBS		Name							Start	F	inish	M&S EQ	M&S Labor	FNAL Labor	Total Cost	
5.8.6.2.11		Connect ADF	TAB/G/	AB and T	FW cables			Mon 1	1/21/05	Tue 11/2		\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	*****	*****	*	
_	11	PhysicistF	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				
	12 55	PhysicistU Linda Bagby	200% 100%	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	32 h 16 h	0 h 0 h	0 h 0 h	0 h 0 h	32 h 16 h				
	75	Alan Stone	100%	\$0.00	\$0.00	\$0.00	\$0.00	16 h	0 h	0 h	0 h	16 h				
	Notes															
V	VBS De	finition- the 61 cables per	ADF (3x20 L	_ _VDS + 1),	controller and rea	adout cables.										
	И&S BO NA	E-														
	abor B0	DE- 1 person can cab	le one ADF	crate per d	ay.											
5.8.6.2.12		L1 Cal Ready	for Tech	nical Co	mmissioning			Tue 1	1/22/05	Tue 11/2	2/05	\$0.00	\$0.00	\$0.00	\$0.00	
-	Notes VBS De			=	_							V 0.00	V	Ç	V	
5.8.6.2.13		Technical com	nmissionin	g in MCI	H1-UIC & CU			Wed 1	1/23/05	Wed 1/	4/06	\$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	•	•	•	
_	12	PhysicistU	300%	\$0.00	\$0.00	\$0.00	\$0.00	600 h	0 h	0 h	0 h	600 h	-			
	96 Notes	Sabaine Lammers	100%	\$0.00	\$0.00	\$0.00	\$0.00	200 h	0 h	0 h	0 h	200 h				
	abor B0					division of lab	oor becomes de		cific personnel	and Universities w		ed. \$0.00	\$0.00	\$0.00	\$0.00	
	ID	Resource Name	Units	Cost	Baseline Cost	Act. Cost	Rem. Cost	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work	ψ0.00	ψ0.00	ψ0.00	
_	11	PhysicistF	300%	\$0.00	\$0.00	\$0.00	\$0.00	600 h	0 h	0 h	0 h	600 h				
	55	Linda Bagby	100%	\$0.00	\$0.00	\$0.00	\$0.00	200 h	0 h	0 h	0 h	200 h				
V	Notes NBS De			_												
										sion readout, devel f period, but operat				use all racks have been	operated in the DAB1 te	st area, pos
	л&S BO	E-														
	.abor B0 Estimate		uilt existina	cal L1. As	university/FNAL	division of lab	oor becomes de	fined, spe	cific personnel	and Universities w	rill be identifie	ed.				
		, ,						,	,							
5.8.7		Level 1 Cal Ti	rigger Ins	talled &	Technical Co	mmissio	ning (Tue	1/17/06	Tue 1/1	7/06	\$0.00	\$0.00	\$0.00	\$0.00	
	Notes NBS De	finition-		_												
		e-The level 1 calor	imeter trigg	er has bee	n installed and te	chnically com	missioned, so	hat it is re	ady for beam i	n the detector.						
5.8.8		Level 1 Calor	imeter Tr	ack Mat	china			Fr	i 1/7/05	Thu 1/1	9/06	\$2,000.00	\$0.00	\$11,486.00	\$13,486.00	
	Notes	20101 : 04:01		_	·····g						0.00	4 =,000.00	V 0.00	V 11,100100	V 10,100.00	
Т				provements	in the Run2a tra	ck-matching	trigger. It includ	des develo	pment and pro	ocurement of slightl	y modified ve	rsions of existing	Level 1 muon cards, a	and procurement of rela	ated cabling, connectors,	readout cra
5.8.8.1		L1 Cal/Track	Match Pro	oductio	n and Testing	Complete	ed	Wed	1 6/1/05	Wed 6	1/05	\$0.00	\$0.00	\$0.00	\$0.00	
V	Notes NBS De	finition- e-All production an	nd testing for	the col/tro	ck match has has	n done										
5.8.8.2	viiiesioiii	L1 Cal/Trk Ma			on materinas Dee	ii dolle.		Tue	6/21/05	Tue 7/1	9/05	\$0.00	\$0.00	\$0.00	\$0.00	
7.U.U.Z		LI Call IIK Wi	accii ilistă	mation				rue	0/21/03	rue //I	3/03	φυ.υυ	φυ.υυ	φυ.υυ	φυ.υυ	

Notes
WBS Definition-

BS	Name	Start	Finish	M&S EQ	M&S Labor	FNAL Labor	Total Cost
	atch Installation" continued						
	ores s summary task describes the installation of the complete cal-track matching system	in the experiment.					
5.8.8.2.1	Install Production L1 CTM electronics in MCH	Tue 6/21/05	Tue 7/19/05	\$0.00	\$0.00	\$0.00	\$0.00
1D			Baseline Work Act. Work	Rem. Work	φ0.00	φ0.00	φ0.00
12		\$0.00 160 h 0 h	0 h 0 h				
Not	S Definition-						
	all MTCxx, MTFB, and MTCM in crate and connect cables (need ~30 cables from L	1Cal trig and L1Cal trk) and do fina	al cable dressing. Work to b	e completed prior to	RunIIb shutdown.		
Labo	or BOE-						
Expe	erience installing Level 1 muon trigger cards in Run 2a. Assumes two physicists at 5	50% FTE each.					
8.8.3	L1 Cal/Track Match Installed in MCH	Tue 7/19/05	Tue 7/19/05	\$0.00	\$0.00	\$0.00	\$0.00
Not	otes			*****	V	*	*****
WBS Miles	S Definition- estone-MCH portion of CTM installed.						
		E-: 4/7/0E	Th. : 4/40/00	\$0.000.00	<u> </u>	£44.400.00	\$40,400,00
8.8.4 Not	L1 Cal/Trk Match Preliminary Technical Commissioning	Fri 1/7/05	Thu 1/19/06	\$2,000.00	\$0.00	\$11,486.00	\$13,486.00
WBS	S Definition-						
	s summary task describes the technical commissioning of the cal-track matching sys ilable.	tem in the experiment. It begins s	shortly after the run resumes	using muon trigger	cards after the 2004 s	shutdown, and continues	s until production L1Caltrk cards a
8.8.4.1	Debug timing and trigger signals from the TFW	Fri 1/7/05	Fri 1/21/05	\$0.00	\$0.00	\$0.00	\$0.00
ID			Baseline Work Act. Work	Rem. Work			
12	2 PhysicistU 200% \$0.00 \$0.00 \$0.00	\$0.00 160 h 0 h	0 h 160 h	0 h			
WBS Verif	otes S definition - fy that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from th S BOE -	e trigger framework. Production cr	ate managers will be on har	nd early 2005.			
WBS Verif M&S No M Labo Requ	S definition - fy that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from th S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanou		-	·	onths, but much more	of the infrastructure will	be in place and tested at the time
WBS Verif M&S No M Labo Requ IIb ta	S definition - fy that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from th S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanot ask: 1 month of physicist time.	it card, muon readout card) to be a	vailable. In run 2a, this tool	x approximately 4 m			
WBS Verif M&S No N Labo Requ IIb ta	S definition - fify that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from th S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanot ask: 1 month of physicist time. Establish L2, L3 readout	ut card, muon readout card) to be a	vailable. In run 2a, this tool Fri 2/18/05	x approximately 4 m	onths, but much more \$0.00	of the infrastructure will \$0.00	be in place and tested at the time \$0.00
WBS Verif M&S No M Labo Requ IIb ta	S definition - fly that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from th S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanou ask: 1 month of physicist time. Establish L2, L3 readout Resource Name Units Cost Baseline Cost Act. Cost Rem. 0	ut card, muon readout card) to be a	vailable. In run 2a, this tool	s approximately 4 m \$0.00 Rem. Work			
WBS Verif M&S No N Labo Requilb ta 8.8.4.2	S definition - fif that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from the S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanot ask: 1 month of physicist time. Establish L2, L3 readout	ut card, muon readout card) to be a Mon 1/24/05 Cost Work Ovt. Work B	vailable. In run 2a, this tool Fri 2/18/05 Baseline Work Act. Work	s approximately 4 m \$0.00 Rem. Work			
WBS Verif M&S No N Labo Requilb to 12 No N N N N N N N N N N N N N N N N N N	S definition - fly that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from the S BOE - M&S associated with this task or BOE - puires full electronics chain (trigger framework, serial command link hub, muon fanouask: 1 month of physicist time. Establish L2, L3 readout Resource Name Units Cost Baseline Cost Act. Cost Rem. (2 PhysicistU 100% \$0.00 \$0.00 \$0.00 \$0.00	ut card, muon readout card) to be a Mon 1/24/05 Cost Work Ovt. Work B	vailable. In run 2a, this tool Fri 2/18/05 Baseline Work Act. Work	s approximately 4 m \$0.00 Rem. Work			
WBS Verifi M&S No N Labor Requilib to 8.8.4.2 ID	S definition - fly that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from the S BOE - M&S associated with this task or BOE - puires full electronics chain (trigger framework, serial command link hub, muon fanou ask: 1 month of physicist time. Establish L2, L3 readout Resource Name Units Cost Baseline Cost Act. Cost Rem. (2) Physicist 100% \$0.00 \$0.00 \$0.00 SO Definition-	ut card, muon readout card) to be a Mon 1/24/05 Cost Work Ovt. Work B	vailable. In run 2a, this tool Fri 2/18/05 Baseline Work Act. Work	s approximately 4 m \$0.00 Rem. Work			
WBS Verif M&S No N Labo Requil to table 18.8.4.2 8.8.4.2 ID 12 Not WBS Reccidence M&S	S definition - fly that the cal-trk trigger is receiving proper timing (BOT) and trigger signals from the S BOE - M&S associated with this task or BOE - quires full electronics chain (trigger framework, serial command link hub, muon fanotask: 1 month of physicist time. Establish L2, L3 readout Resource Name Units Cost Baseline Cost Act. Cost Rem. (2 PhysicistU 100% \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 S Definition- ord data sent to L2 and L3 and verify format.	ut card, muon readout card) to be a Mon 1/24/05 Cost Work Ovt. Work B	vailable. In run 2a, this tool Fri 2/18/05 Baseline Work Act. Work	s approximately 4 m \$0.00 Rem. Work			
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